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ABSTRACT

Since 1993 and 1994, significant changes in legislation and policy allow women to fly combat aircraft, serve on combat ships, and serve in combat-related occupations. As was the case in the early 1990s, a large percentage of military women continue to work in the areas of health care, administration, personnel, and supply occupations. However, data suggest that military women, both enlisted and officers, are beginning to enter more nontraditional fields such as aviation, surface warfare, air traffic control, and field artillery. Although most military occupations and career fields are open to women, two institutional barriers have been identified that limit the number of women going into these occupations. First, because of Department of Defense and service policies, some units are closed to women even though the units may include occupations that are open to women. Second, the test used to match enlisted personnel to occupations--the Armed Services Vocational Aptitude Battery--contains sections based on exposure to a subject instead of aptitude. For example, one section tests knowledge of automotive components, systems, tools, and repairs--a subject to which women have had little exposure. (Appendixes include a list of military occupations opened to women in the early 1990s, a list of occupations with the greatest percentages of women, and 8 figures in addition to the 16 found in the text.) (YLB)

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United States General Accounting Office

GAO

Report to the Ranking Minority Member, Subcommittee on Readiness and Management Support, Committee on Armed Services, U.S. Senate

ED 432 698

September 1999

GENDER ISSUES

Trends in the Occupational Distribution of Military Women

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United States General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-283056

September 14, 1999

The Honorable Charles S. Robb
Ranking Minority Member
Subcommittee on Readiness and Management Support
Committee on Armed Services
United States Senate

Dear Senator Robb:

In 1993 and 1994, significant changes in legislation and policy allowed women to fly combat aircraft, serve on combat ships, and serve in more combat-related occupations.[1] As of September 1998, 90 percent of the services' career fields were open to women, and 80 percent of the services' 1,425,000 positions were open to women. The major areas closed to women include infantry, armor, special forces/SEAL, and submarine warfare. All are associated with ground combat, except submarine warfare, which remains closed due to the cost of changing habitability conditions. As you requested, we determined (1) all occupations women were in during fiscal years 1990 and 1998, particularly those with the highest percentage of women and (2) systemic barriers, if any, that limit women entering certain occupations.

Results in Brief

As was the case in the early 1990s, a large percentage of military women continue to work in the areas of health care, administration, personnel, and supply occupations. For example, in fiscal year 1998, 44 percent of female officers were in health care professions. However, data suggest that military women, both enlisted and officers, are beginning to enter more nontraditional fields such as aviation, surface warfare, air traffic control, and field artillery. For example, the number of female Marine Corps officers that were pilots or naval flight officers increased from zero in fiscal year 1993 (the year these occupations opened to women) to 62 in fiscal year 1998. The 62 pilots or naval flight officers constitute over 7 percent of all female Marine Corps officers. The number of enlisted Army women that

[1]The fiscal year 1992-93 National Defense Authorization Act (P.L. 102-190, Dec. 5, 1991) lifted the ban on the assignment of women to combat aircraft. The fiscal year 1994 National Defense Authorization Act (P.L. 103-160, Nov. 30, 1993) lifted the ban on the assignment of women to combat ships.

were in field artillery increased from 32 to 122 in fiscal years 1992 and 1998, respectively. This increase is dramatic considering that the number of men in this occupation decreased by 26.5 percent during this time frame.

While most military occupations and career fields are open to women,[2] we identified two institutional barriers that limit the number of women going into these occupations. First, because of Department of Defense (DOD) and service policies, some units are closed to women even though the units may include occupations that are open to women. As a result, the number of women that can enter some career fields is limited. For example, the Navy limits the number of enlisted women in its nuclear training program because women cannot serve on submarines. The Navy also limits the number of women in medical corpsmen training because the Navy provides corpsmen to Marine Corps units that are closed to women. The Marine Corps limits the number of enlisted women that can serve as helicopter crew chiefs because helicopters are often assigned to ships and not all Navy ships can accommodate enlisted women at this time. In the Army, some occupations may be open to women, but the number of enlisted women or officers in those occupations is limited because many of the job slots are in male-only units. For example, a woman may be qualified as an administrative specialist but is not allowed to fill that position if the job is in a unit, such as infantry, that is closed to women. Only a handful of Air Force occupations are closed or restricted to women due to DOD's assignment policies.

Another barrier is the test used to match enlisted personnel to occupations—the Armed Services Vocational Aptitude Battery (ASVAB) test—which contains sections that are based on exposure to a subject instead of aptitude. For example, one section tests knowledge of automotive components, systems, tools, and repairs. A person who has had little or no exposure to the workings of automobiles would not likely do well on this section of the test. Studies have found that women generally do not score well on this section of the test as well as those sections that test mechanical comprehension or electronic information because many women have had little or no exposure to these subjects. Attitudes are mixed on the impact of this type of test. Some officials believe that if people have not had exposure to certain subject matter, they are most likely not interested in that field even if they have an aptitude for

[2]Gender Issues Information on DOD's Assignment Policy and Direct Ground Combat Definition (GAO/NSIAD-99-7, Oct.19, 1998).

the subject matter. Others believe that people should be given a chance if they have an aptitude for the subject matter. DOD test designers are currently working on a new section of the ASVAB, assembling objects, which might mitigate the technical test's effects on women's scores.

Background

The Persian Gulf War saw the largest deployment of women in U.S. military history. Approximately 41,000 women were deployed, or 7 percent of the total deployed force. Partly because of women's performance in the war, legislative restrictions on women's occupations were lifted. In 1991, Congress repealed the restriction on women flying in combat roles, and DOD implemented this change in 1993. In November 1993, Congress lifted the ban on the assignment of women to combat ships. In January 1994, the Secretary of Defense announced a new assignment policy for women. This policy states that "servicemembers are eligible to be assigned to all positions for which they are qualified, except that women shall be excluded from assignment to units below the brigade level whose primary mission is to engage in direct combat on the ground." In addition to this direct ground combat exclusion, the Secretary also permitted the services to close positions to women if (1) the units and positions were required to physically collocate and remain with direct ground combat units, (2) the service secretary attests that the cost of providing appropriate living space for women is prohibitive, (3) the units are engaged in special operations missions, or (4) job-related physical requirements would exclude the vast majority of women. No jobs are closed to women because of job-related physical requirements.

As a result of these policy changes, many of the occupations previously closed to women are now open to them. These changes have meant that in the Air Force, women can fly bombers and fighters or serve as navigators on these aircraft. In the Navy, women can fly combat aircraft and serve on most combat ships, except submarines. In the Marine Corps and the Army, women are now allowed in occupations such as explosive ordnance disposal technician and field artillery surveyor that had been closed for years. Appendix I provides a list of occupations opened to women since the early 1990s. Although these occupations were opened to women, servicemembers cannot laterally transfer into occupations without undergoing retraining. Generally, women could enter these newly opened occupations only when they first entered into the military.

Job assignments for enlisted members of the armed forces are generally made at the Military Entrance Processing Stations (MEPS). MEPS officials

administer the ASVAB test to determine whether a recruit is qualified for enlistment and the military job occupations for which the recruit is qualified. The ASVAB test contains 10 sections: general science, arithmetic reasoning, word knowledge, paragraph comprehension, numerical operations, coding speed, auto and shop information, mathematics knowledge, mechanical comprehension, and electronics information. Using the recruit's ASVAB scores, along with other factors such as strength, physical health, and moral character, the services' job counselors determine what entry-level occupations the recruit is eligible for based on the apparent strengths of the individual and the services' needs at that time. The recruit decides what occupation appeals to him or her from those that are available.

Job assignments for officers vary by service. In general, however, all the services match the officers' preferences with the open occupations. The Air Force classifies officers based on their preferences and the needs of the Air Force. Factors considered are college major and other academic endeavors, for example, a concentration in languages or math. All the services, except for the Marine Corps, give top-ranking graduates of the service academies priority in selecting occupations.

Occupations of Women in the Military

As was the case in the early 1990s, a significant number of officers and enlisted women continue to be concentrated in the health care, administration, personnel, and supply occupations. However, the number of women going into more technical or combat-related fields is increasing. While this is true for all of the services, the Marine Corps officers had the most dramatic growth of women in technical fields.

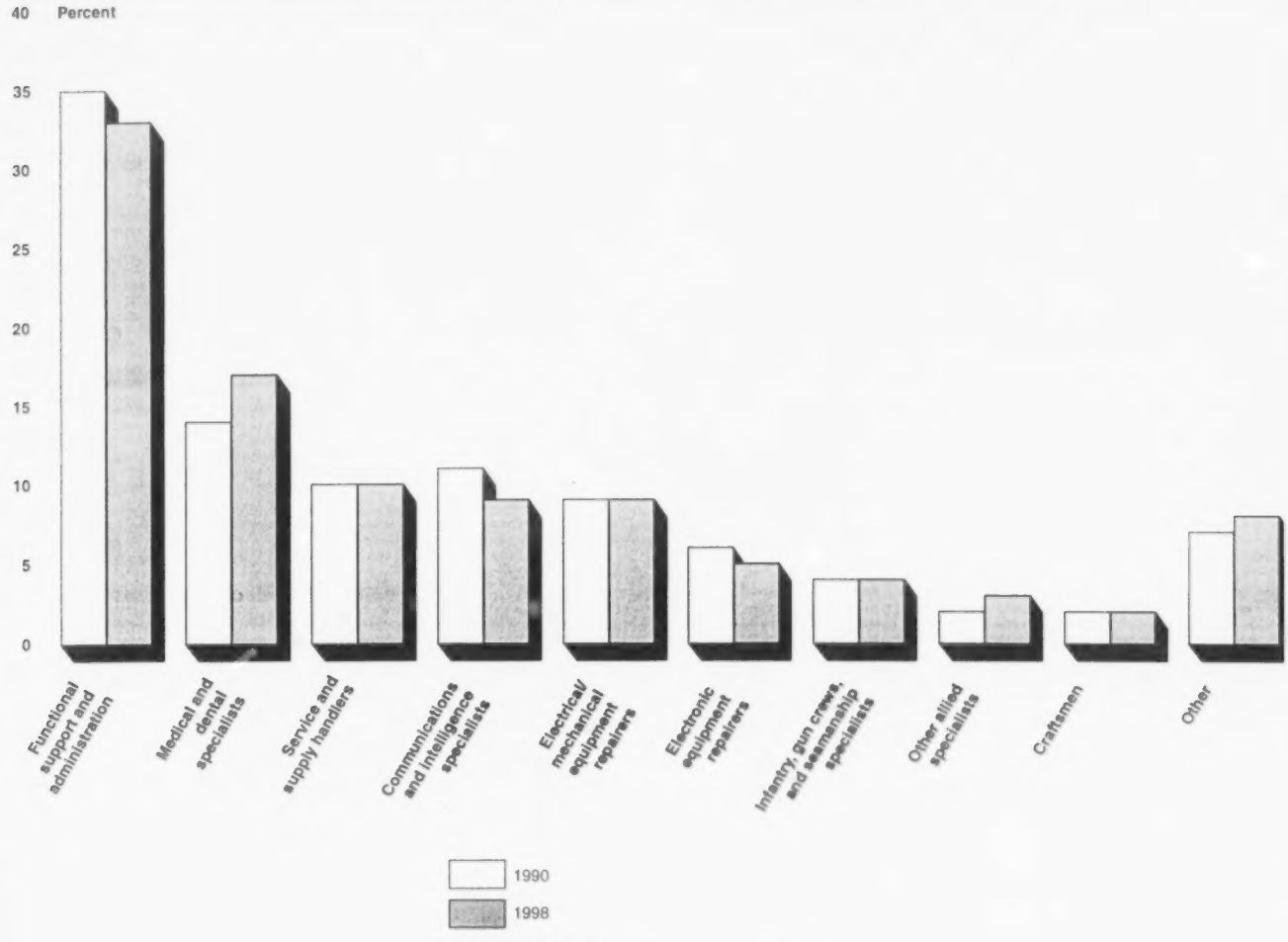
The following sections contain figures that show the percentage of all women, DOD-wide and by service, that were assigned in occupations in fiscal year 1990 (fiscal year 1992 for the Army) and fiscal year 1998. The occupations shown for the services are those occupations that had the most women in them in either fiscal year 1990 (fiscal year 1992 for the Army) or 1998. Oftentimes, these occupations were the same for both fiscal years, with one or two unique occupations for each year. These figures show that the percentage of women in most of the career fields we analyzed remained fairly stable between fiscal years 1990 (fiscal year 1992 for the Army) and 1998 for DOD-wide and for the four services. These figures do not necessarily highlight those occupations with fewer positions, but a high number of women when compared to men. In contrast, appendix II details, by service, the occupations with the greatest

percentage of women when compared to men. Appendix II also shows the information for those occupations that had the highest proportion of women when compared to men for one or both fiscal years.

DOD-Wide

According to data from the Defense Manpower Data Center (DMDC), which collects occupational data from all four services and converts the data into a standardized, DOD-wide occupational classification, in fiscal years 1990 and 1998, enlisted women served predominantly in the functional support and administration occupational area (see fig. 1). This area includes such occupational areas as personnel, recruiting and counseling, law, supply administration, auditing and accounting, and general administration. Another occupational area that had a high concentration of enlisted women in both fiscal years was the medical and dental specialist area.

Figure 1: Occupational Distribution of Enlisted Women, DOD-Wide, During Fiscal Years 1990 and 1998



Source: DMDC data.

As shown in figure 2, over 40 percent of female officers were in health care occupations during fiscal years 1990 and 1998. The next highest concentration of female officers was in administration, which includes occupations in general administration, manpower and personnel, comptrollers, data processing, information, police, and morale and welfare. By fiscal year 1998, 2 percent of women were general/flag officers or executives compared to 0 percent in fiscal year 1990. In addition to general

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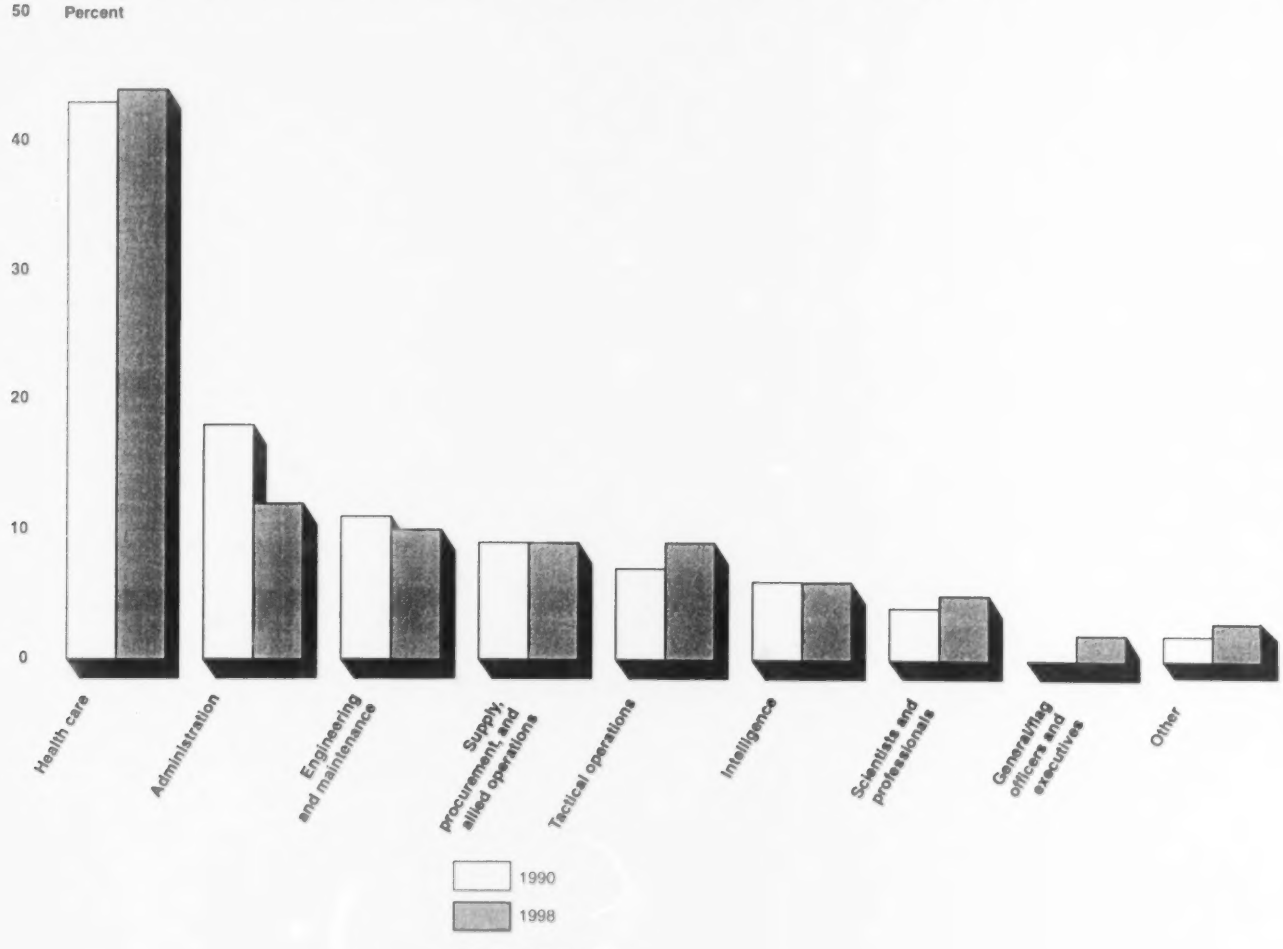
and flag officers, this category includes senior officers, such as colonels, that have command duties. Examples of positions are operating forces command commander, judge advocate colonel, and operations commander. In addition, the number of women increased in the tactical operations area, which includes occupations such as pilots, aircraft crews, ground and naval arms officers, and missiles and weapons officers.

Figure 2: Occupational Distribution of Female Officers, DOD-Wide, During Fiscal Years 1990 and 1998



Source: DMDC data.

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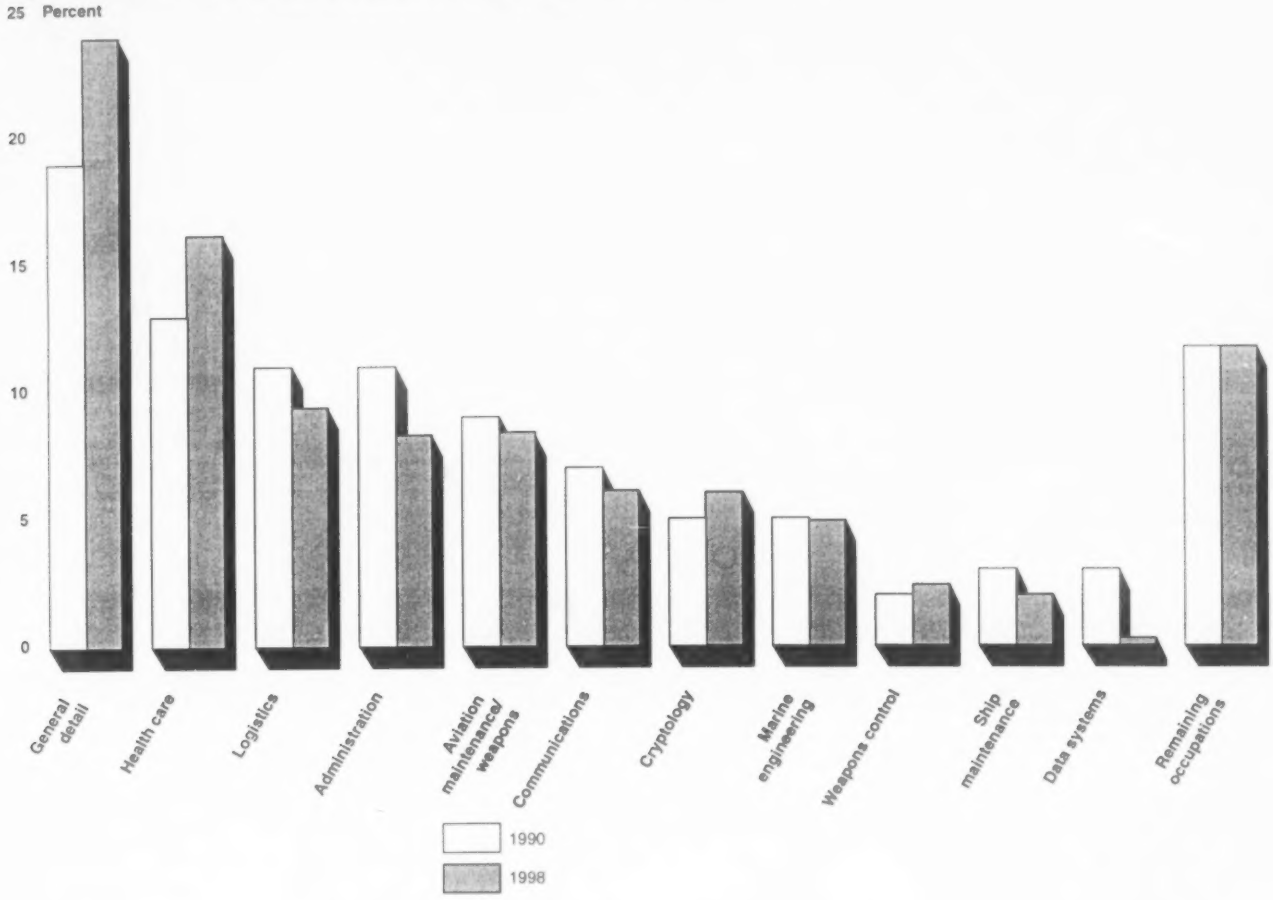
Navy

In both fiscal years 1990 and 1998, the "general detail" occupation had more enlisted women than any other occupation in the Navy (see fig. 3). The "general detail" occupation encompasses the apprenticeship level for seaman, airman, and fireman. Typically, only junior enlisted sailors are in this occupation. Enlisted sailors are assigned to this occupation if they are unsure about what occupation they want to pursue in the Navy, if their test scores do not qualify them for a particular occupation, or if the occupations they want have no openings when they enlist. Sailors are assigned to an occupation from the general detail occupation when one becomes available that fits their abilities, interests, and needs of the Navy.

The health care occupation continues to have a high concentration of enlisted women. In fiscal year 1990, 13 percent of the Navy's enlisted women were in health care; in fiscal year 1998, about 16 percent of the enlisted women were in these occupations. These occupations include hospital corpsmen, dental technicians, and laboratory technicians.

Figure 3: Distribution of Enlisted Women in Navy Occupations in Fiscal Years 1990 and 1998



Source: DMDC data.

In fiscal year 1998, the Navy nurse corps had more women than any other community (see fig. 4). Twenty-eight percent of female officers in the Navy were in the nurse corps compared to about 29 percent in fiscal year 1990. However, the nurse corps did not have the highest concentration of women in fiscal year 1990—special duty fleet support did.[3] Women in this

[3]In fiscal year 1990, special duty fleet support was called unrestricted line officers (URL).

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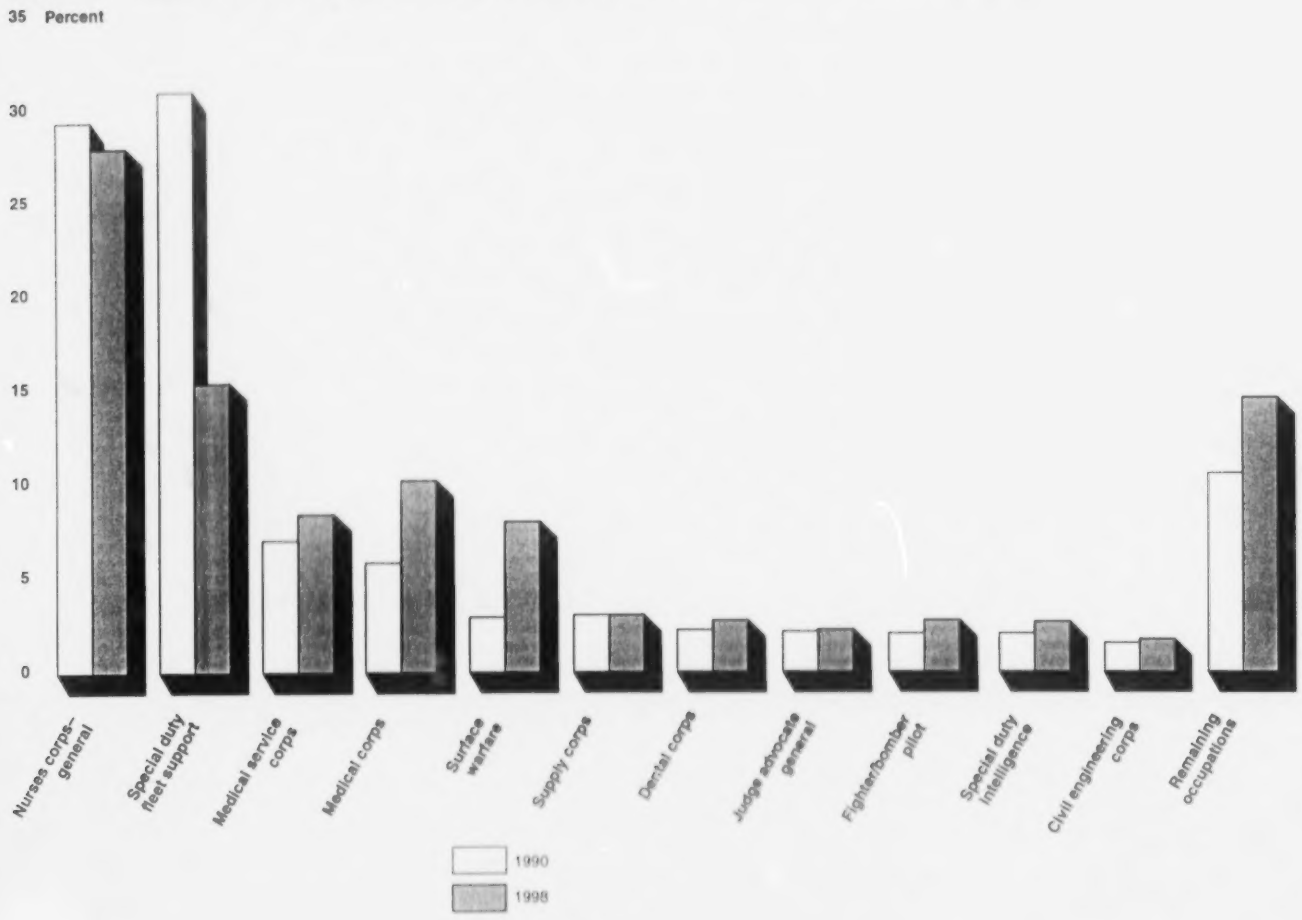
community serve in billets such as information systems management, communications, personnel administration, and recruiting. In 1990, 31 percent of female officers were in special duty fleet support. This percentage decreased to 15.4 percent in fiscal year 1998.

Figure 4 also shows that a growing percentage of women are going into the surface warfare occupation. Officers in this occupation serve on destroyers, aircraft carriers, and other surface ships in a variety of positions. In fiscal year 1990, nearly 3 percent of female officers served in the surface warfare occupation. By fiscal year 1998, this percentage had increased to 8 percent due in part to the 1994 repeal of the law prohibiting women from serving on combat ships.

Figure 4: Distribution of Female Officers in Navy Career Fields in Fiscal Year 1990 and Fiscal Year 1998



Source: DMDC data.

As figure 5 shows, the Navy's enlisted women have made gains in specific jobs that were previously closed to them. The number of women in the fire controlman job increased from zero in fiscal year 1993 to 266 in fiscal year 1998. The number of women in the sonar technician, surface job also increased from zero in fiscal year 1993 to 345 in fiscal year 1998.

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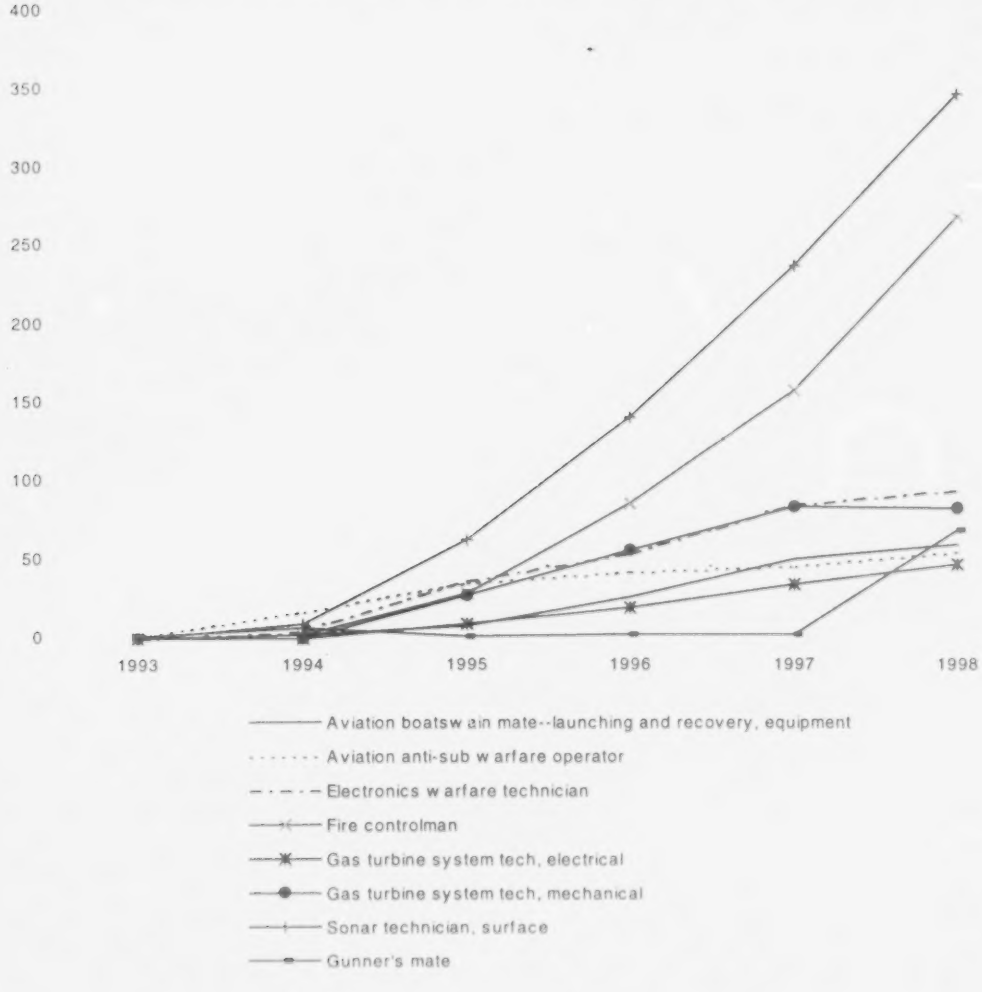
Figure 5: Increase in the Number of Navy Women in Occupations Previously Closed to Women, Fiscal Years 1993 Through 1998



Source: DMDC data.

Marine Corps

As figure 6 shows, the percentage of enlisted women in most of the Marine Corps career fields we analyzed remained fairly stable between fiscal year 1990 and 1998. However, two career fields–personnel and administration and supply administration and operations—experienced a sizeable

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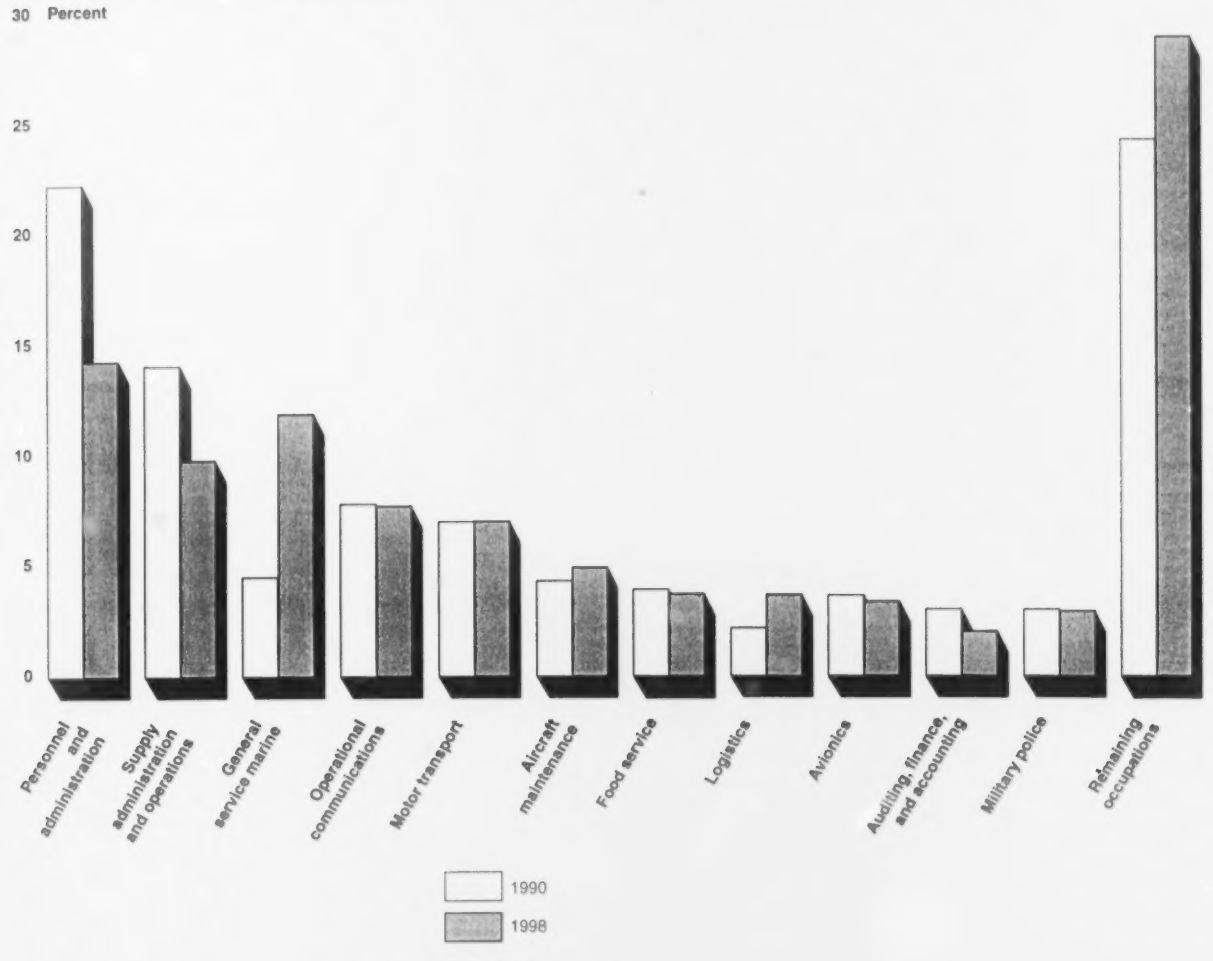
decrease in the percentage of enlisted women, and the career field of general service marine showed a marked increase. This career field includes a wide range of occupations such as general service marine, basic marine with enlistment guarantee, sergeants major and first sergeants, and marine air ground task force planners. Most of the enlisted women were in the basic marine with enlistment guarantee category, with general service marine being the next highest category. These marines' military qualifications and experience are not yet developed to be sufficient or adequate for qualification in other occupations. The Marine Corps assigns the general service marine occupation to those recruits undergoing training who did not enlist under a special enlistment program. The basic marine with enlistment guarantee category is assigned to personnel that join under an enlistment option program or an enlistment incentive program.

Figure 6: Distribution of Enlisted Women in Marine Corps Occupations in Fiscal Years 1990 and 1998



Source: DMDC data.

Patterns for female officers in the Marine Corps are similar to those for enlisted women. As figure 7 shows, the greatest concentration of women continues to be in the personnel and administration occupation. However, there were an increased number of women serving as pilots and naval flight officers and general service marines and in air control/air support/antiair warfare occupations. In addition, the number of women officers decreased

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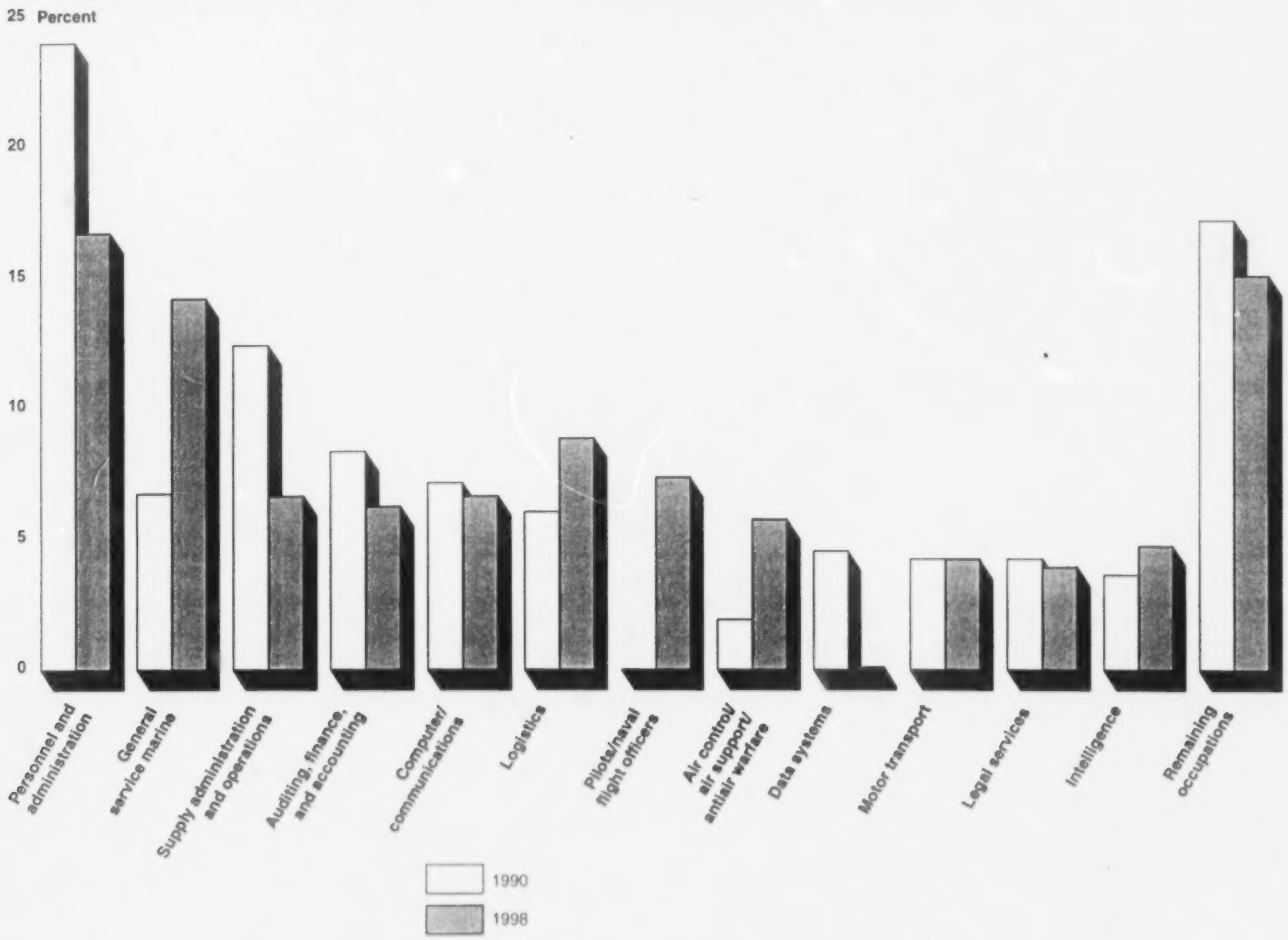
in the personnel and administration; supply administration and operations; auditing, finance, and accounting; and data systems occupations.

Figure 7: Distribution of Female Officers in Marine Corps Occupations in Fiscal Years 1990 and 1998



Source: DMDC data.

As figures 8 (ground occupations), 9, and 10 (aviation related occupation) show, Marine Corps women have been making gains in specific jobs that were previously closed to them, especially in the combat engineer and pilot

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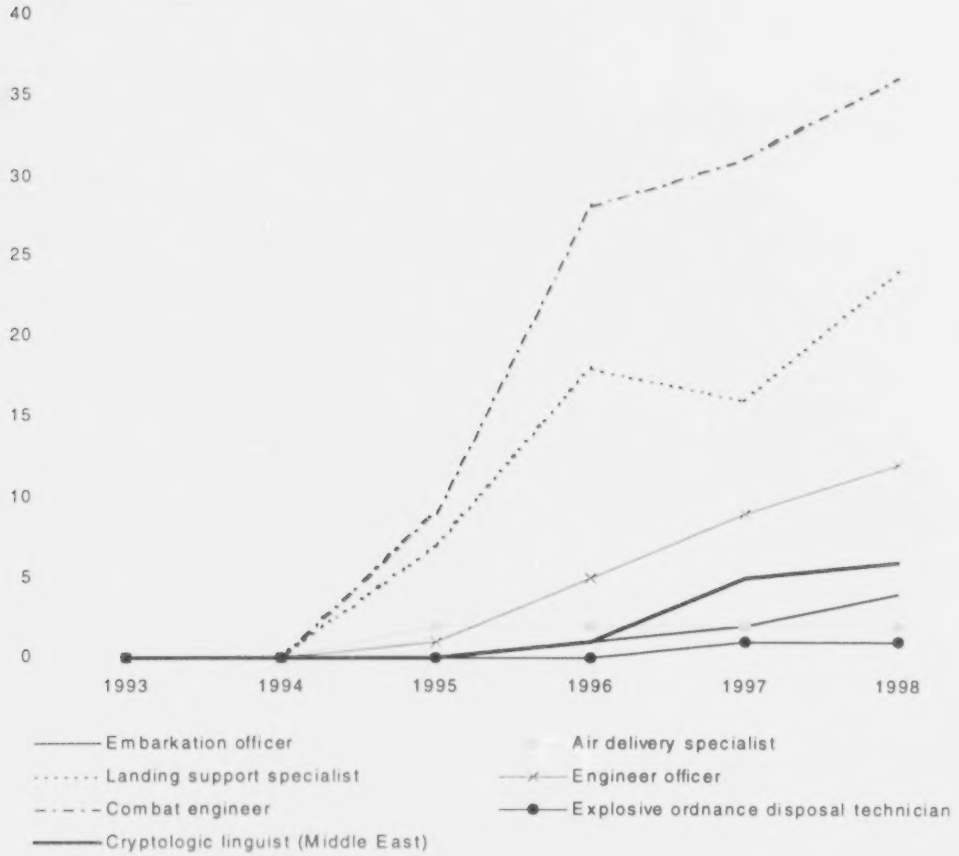
and naval flight officer jobs. The combat engineer job did not open to women until 1994; however, by 1998, 36 women had this job. Even more dramatic was the number of women that became pilots and naval flight officers. By 1998, 62 women were pilots or flight officers. This number constitutes over 7 percent of the Marine Corps female officers. No women have yet been assigned to 11 recently opened jobs. These include

- explosive ordnance disposal officer;
- ground nuclear weapons assembly technician;
- ground nuclear weapons assembly officer;
- ground launched missile system maintenance officer;
- aviation fire control repairer;
- aviation fire control technician;
- aircraft flight engineer, KC-130;
- helicopter maintenance chief;
- aircraft power plants test cell operator, rotary wing;
- presidential support specialist; and
- aerial navigation officer.

Figure 8: Increase in the Number of Female Marine Corps Enlisted and Officers in Ground Jobs Previously Closed, Fiscal Years 1993 Through 1998



Source: DMDC data.

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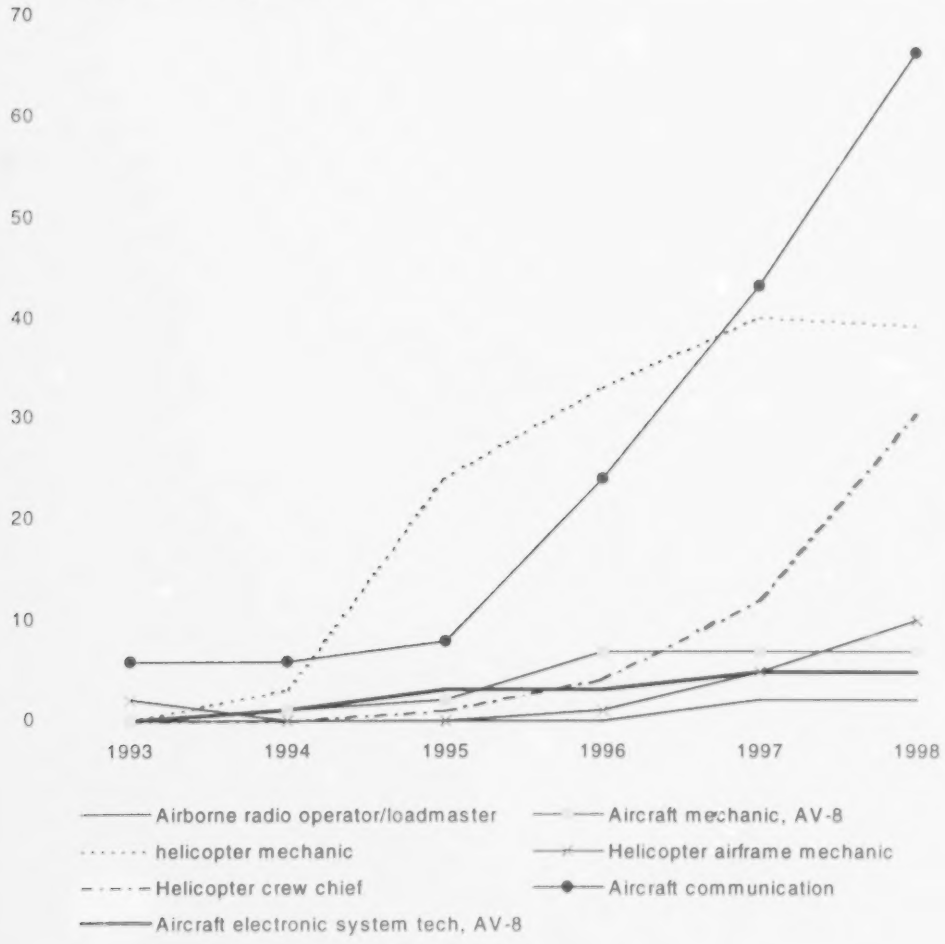
Figure 9: Increase in the Number of Female Marine Corps Enlisted and Officers in Selected Aviation Jobs Previously Closed, Fiscal Years 1993 Through 1998



Source: DMDC data.

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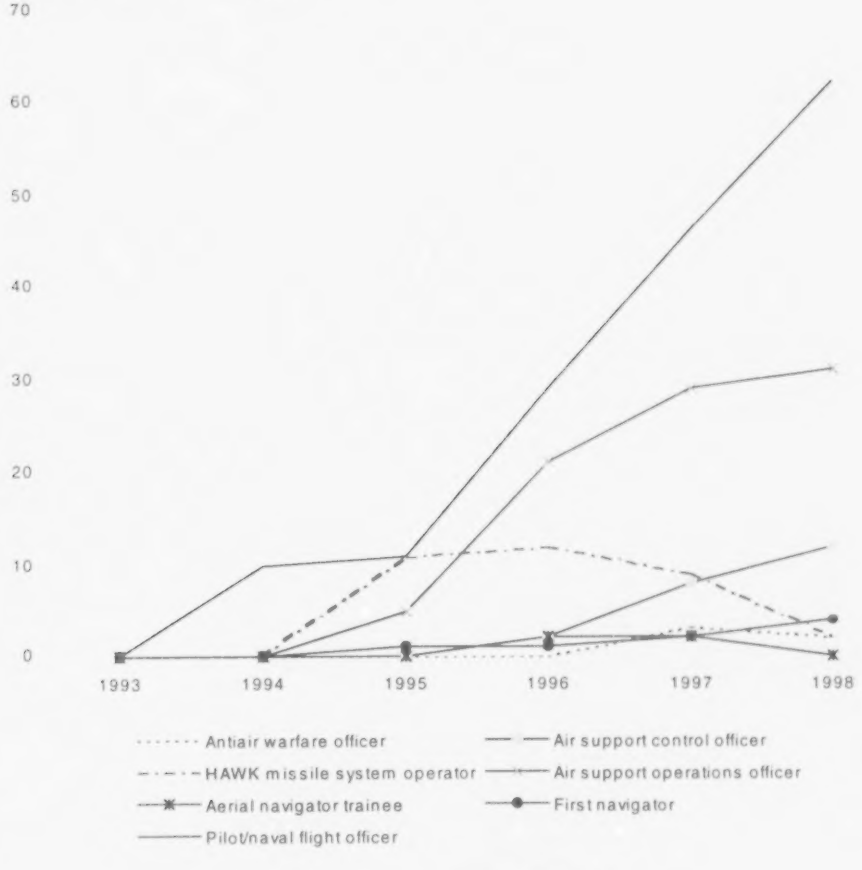
Figure 10: Increase in the Number of Female Marine Corps Enlisted and Officers in Selected Aviation Jobs Previously Closed, Fiscal Years 1993 Through 1998



Source: DMDC data.

Air Force

The proportion of enlisted women serving in various Air Force occupations was generally similar in fiscal years 1998 and 1990. Furthermore, women were not highly concentrated in any one specific occupation. About 10 percent of enlisted women in the Air Force were in the information management occupation, and another 10 percent were in the supply occupation (see fig. 11). Detailed Air Force data also show that the number of women in technical or combat-related occupations has increased. For

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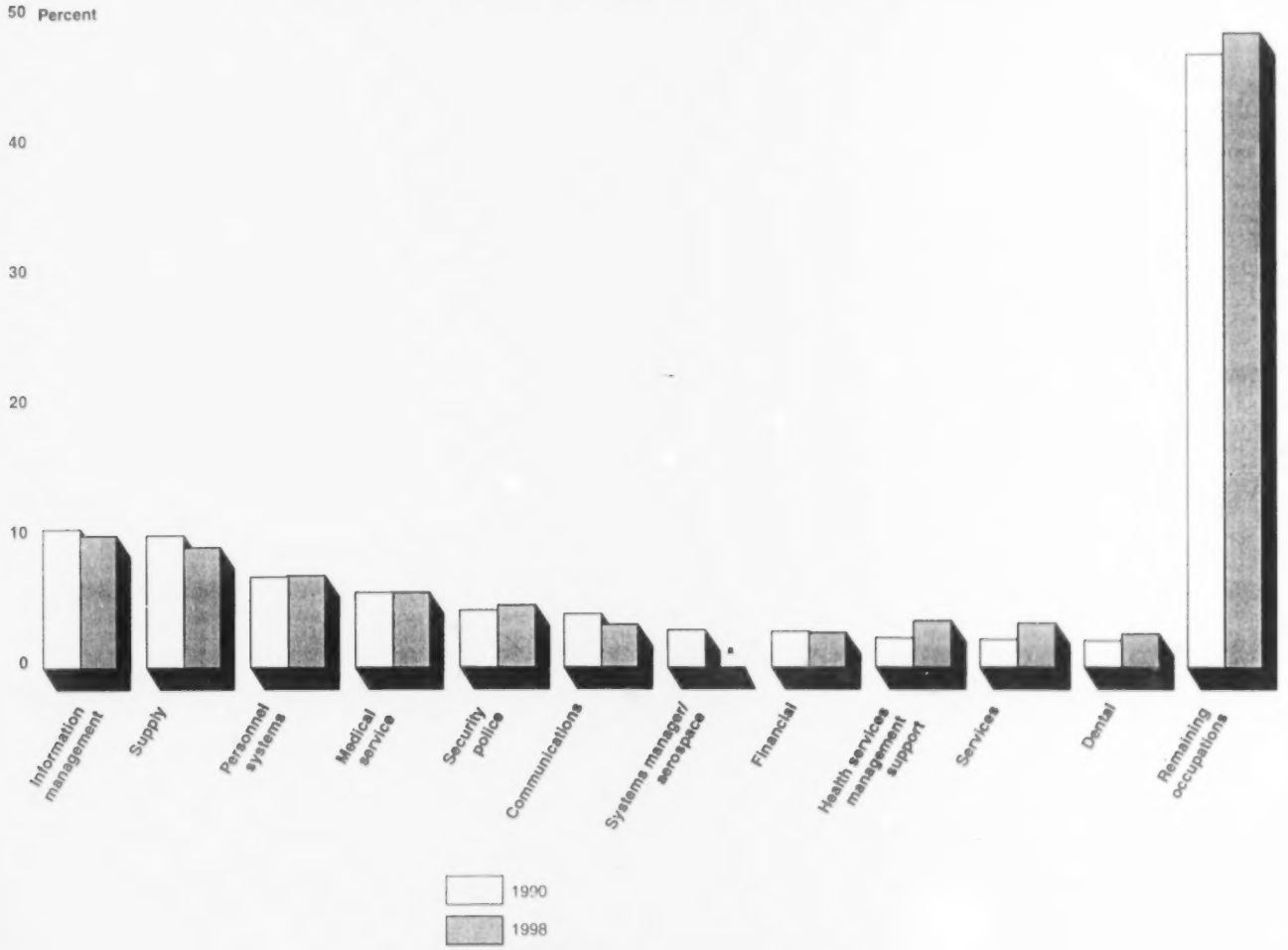
example, the number of enlisted women in airborne warning communications and control systems occupations increased from 41 in fiscal year 1990 to 108 in fiscal year 1998. Similarly, in space system operations, the number of enlisted women increased from 26 in fiscal year 1990 to 136 in fiscal year 1998. The biggest increase was in air traffic control, where the number of women more than tripled since fiscal year 1990 to 727 in fiscal year 1998.

Figure 11: Distribution of Enlisted Women in Air Force Occupations in Fiscal Years 1990 and 1998



*This category did not exist in fiscal year 1998.

Comparable data for female Air Force officers are shown in figure 12. The greatest concentration of female Air Force officers is in the nurse corps. As figure 12 shows, about 29 percent of the women were in the nurses' corps in fiscal year 1998, compared to almost 32 percent in fiscal year 1990. One occupation where the number increased significantly was in the space, astronaut, and missile occupation, which increased from 226 female

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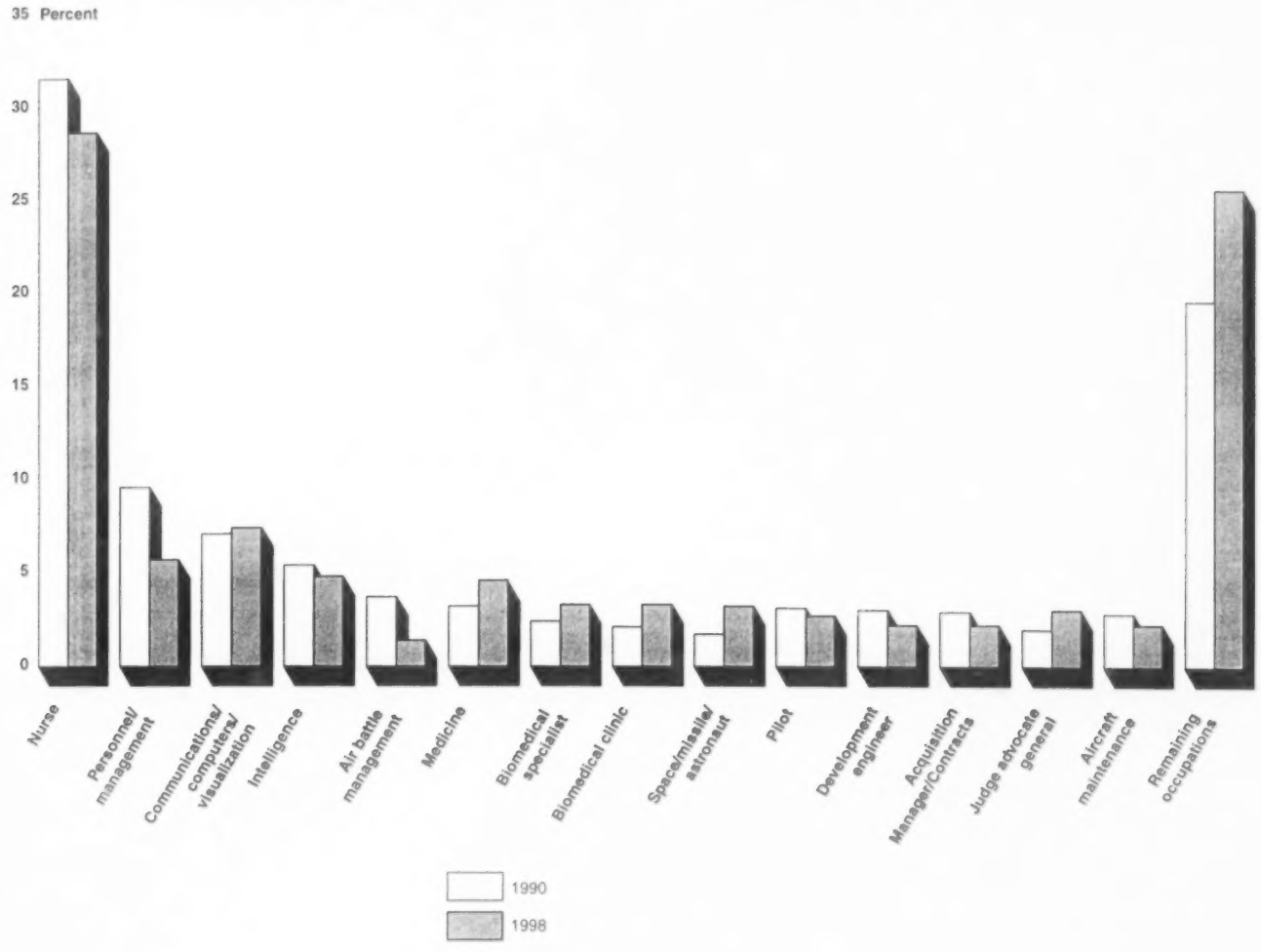
officers in fiscal year 1990 to 384 female officers in fiscal year 1998. While the proportion of female pilots decreased slightly between fiscal years 1990 and 1998, the figure remained about 3 percent.

Figure 12: Distribution of Female Officers in Air Force Occupations in Fiscal Years 1990 and 1998.



Source: DMDC data.

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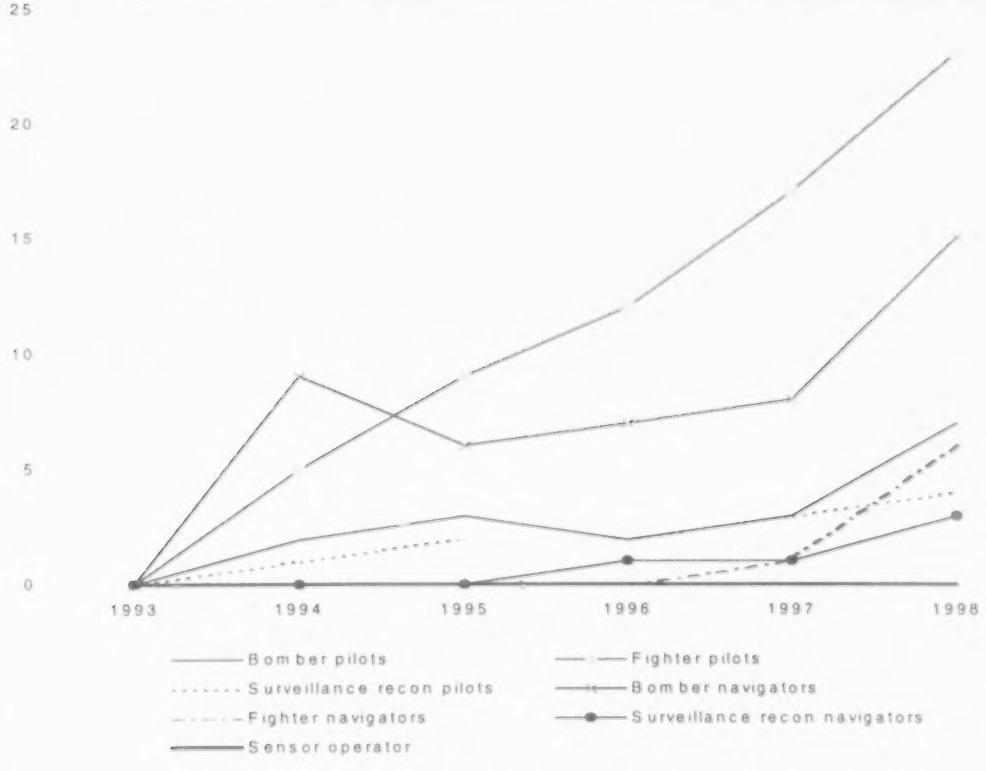
As figure 13 shows, Air Force women have been entering specific jobs that were previously closed to them. For example, the number of women that are bomber and fighter pilots has increased as have the number of women that have served as combat navigators. One job that women have not entered is the sensor operator job, which opened to women in 1993. This job requires a lateral transfer at the E-5 or E-6 level.

Figure 13: Increase in the Number of Women in Air Force Jobs Previously Closed to Women, Fiscal Years 1993 Through 1998



Source: DMDC data.

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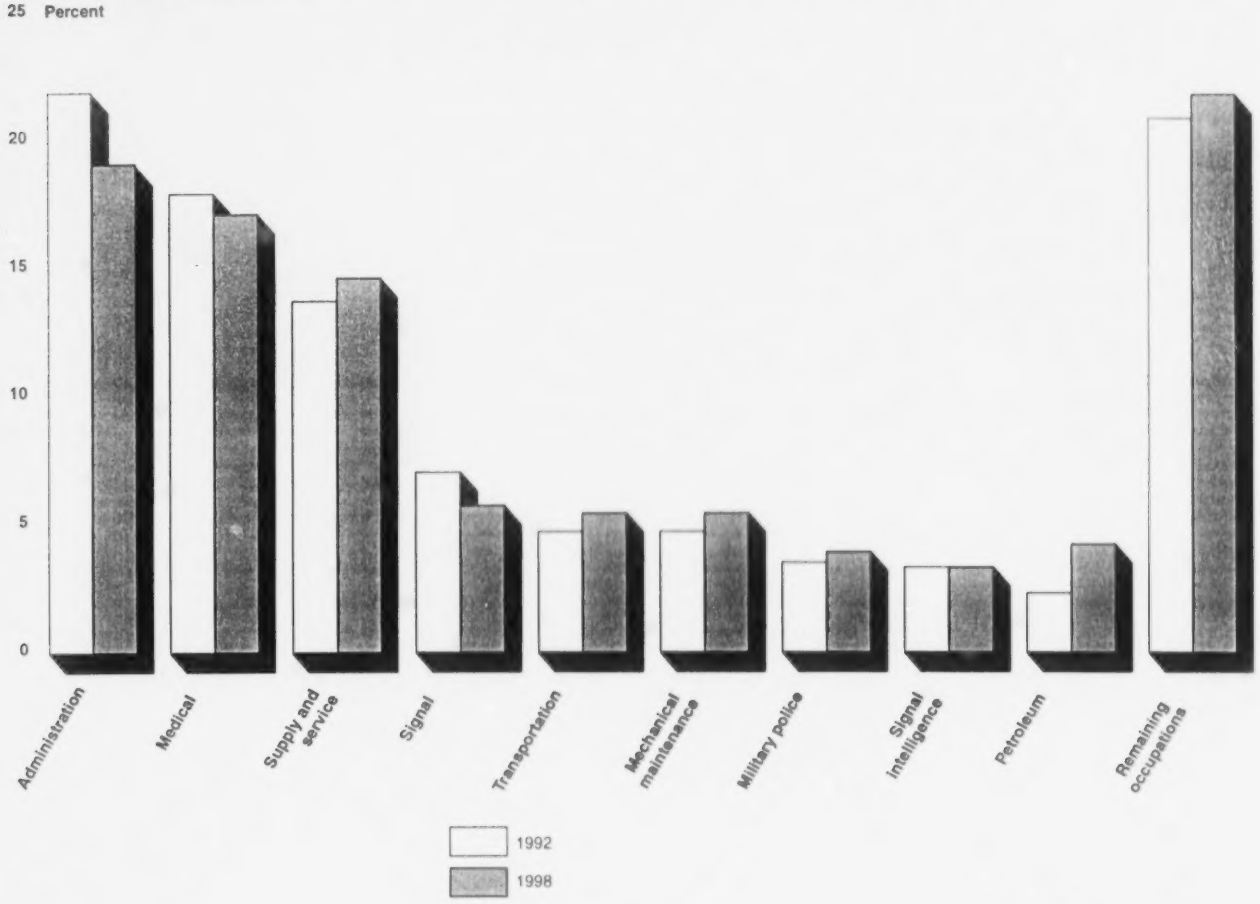
Army

Army enlisted women were generally in the same occupations in fiscal year 1998 that they were in fiscal year 1992 (see fig. 14).[4] The three main occupations were administration, medicine, and supply and service. However, the number of enlisted women has been steadily increasing in many technical and combat-related occupations. For many of these occupations, the numbers of women entering these occupations were too small to affect the percentage of women in the occupations and were included in the "remaining occupations" category in figure 13. For example, the number of women in the field artillery occupation increased from 32 in fiscal year 1992 to 122 in fiscal year 1998. This increase is even more dramatic considering that the number of men decreased by 26.5 percent in this occupation during this time frame. In addition, the number of enlisted women in air defense increased from 350 in fiscal year 1992 to 546 in fiscal year 1998. The increase of enlisted women in electronic maintenance is especially dramatic, from 45 in fiscal year 1992 to 719 in fiscal year 1998. Other occupations that show increases were the chemical and petroleum occupations. The number of women in the chemical occupation increased from 596 in fiscal year 1992 to 1,058 in fiscal year 1998, while the number of women in the petroleum occupation rose from 1,429 in fiscal year 1992 to 2,537 in fiscal year 1998.

[4]Because we could not reconcile the Army's data with DMDC 's database, we chose to use the Army's data. However, Army officials were only able to provide data beginning with fiscal year 1992.

Figure 14: Distribution of Enlisted Women in Army Occupations in Fiscal Years 1992 and 1998



Source: Army data.

In the Army, female officers were generally in the same occupations in fiscal year 1998 that they were in fiscal year 1992 (see fig. 15). As with the Navy and the Air Force, the highest concentration of women was in the Army Nurse Corps (ANC). About 30 percent of female officers were in ANC during fiscal year 1992, compared to 23 percent in fiscal year 1998. Although the percentage of women in the engineering and aviation occupations remains small, detailed Army data show that the number of women entering these occupations increased. Specifically, the number of

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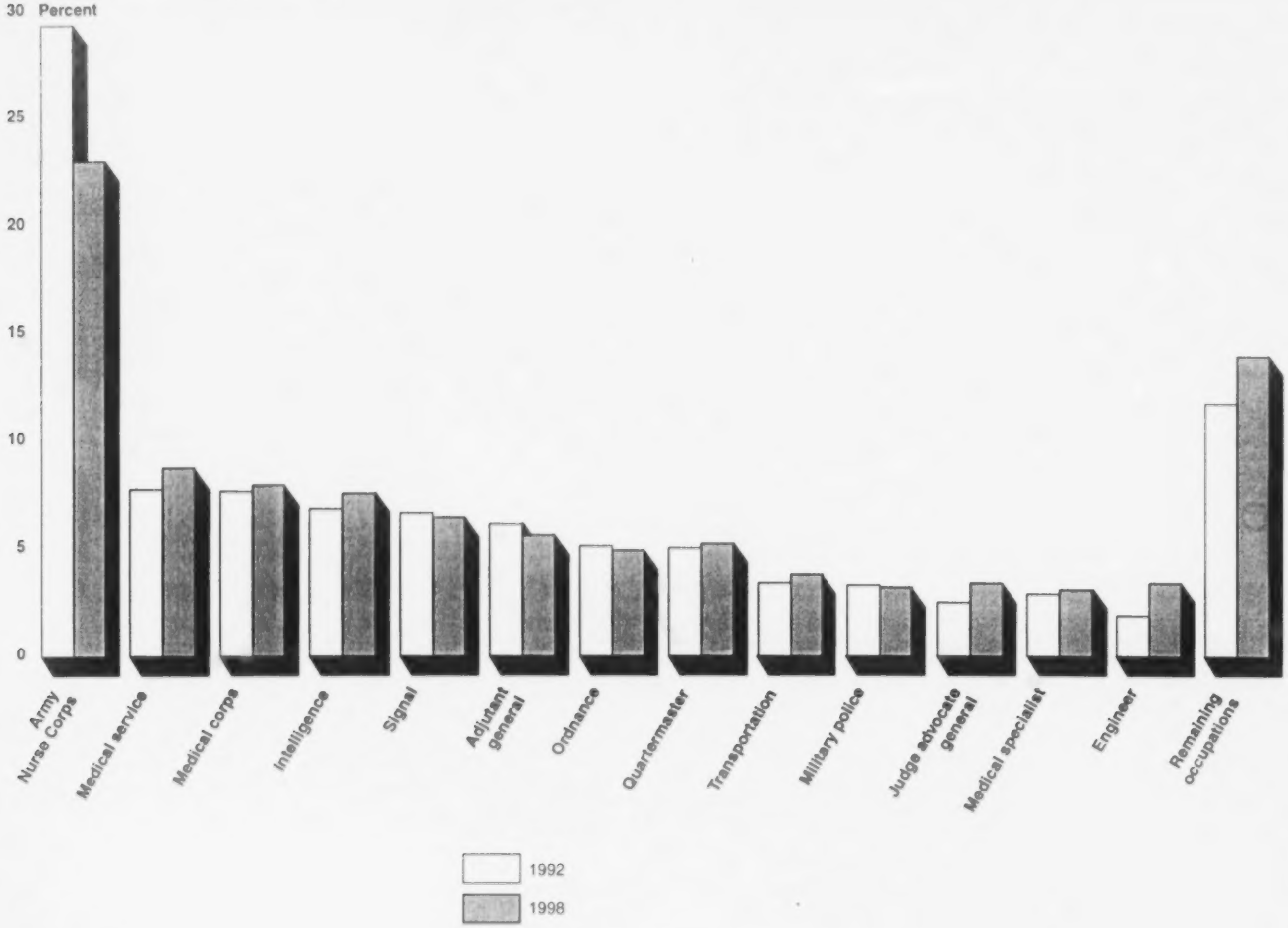
women officers increased from 210 in fiscal year 1992 to 329 in fiscal year 1998 in the engineering branch and from 234 in fiscal year 1992 to 293 in fiscal year 1998 in the aviation occupation.

Figure 15: Distribution of Female Officers in Army Occupations in Fiscal Years 1992 and 1998



Source: Army data.

In 1994, the Army opened new jobs to enlisted women and female warrant officers. As figure 16 shows, Army women have entered some of these

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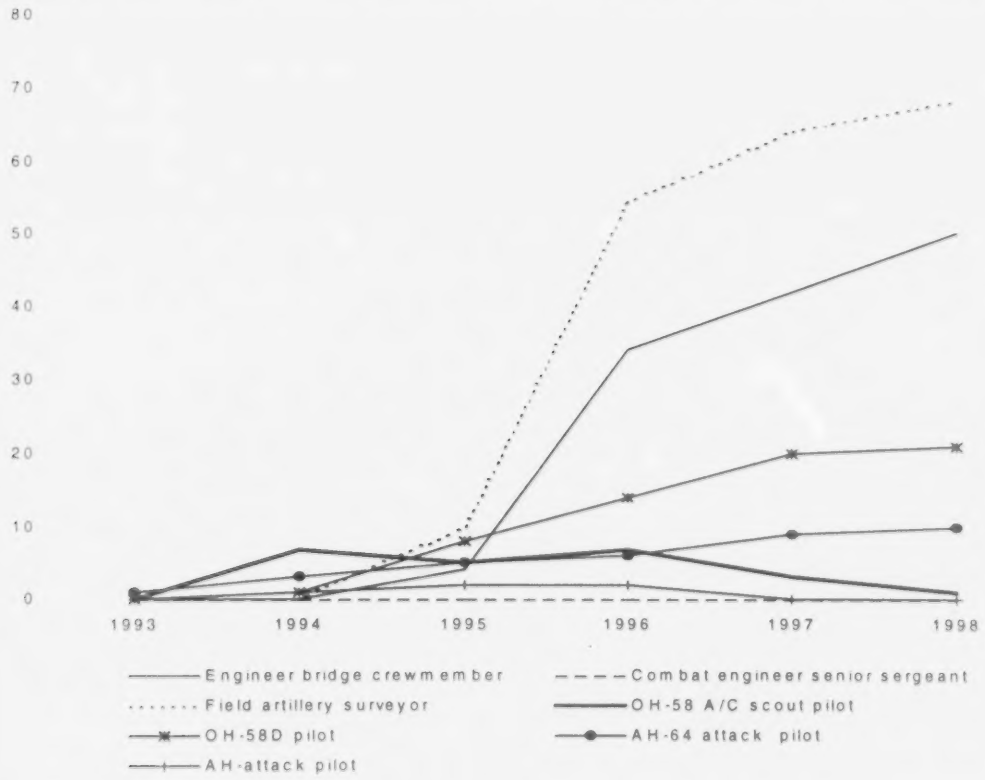
specific jobs in dramatic fashion. For example, the job of field artillery surveyor had 68 women in fiscal year 1998 and the number of female engineer bridge crewmembers reached 50 in fiscal year 1998. One job, combat engineer senior sergeant, has had no women in it since it was opened to women in fiscal year 1994. According to Army officials, this job has not been open long enough for women to advance to the rank of senior sergeant.

Figure 16: Increase in the Number of Women in Army Jobs Previously Closed to Women, Fiscal Years 1993 Through 1998



Source: DMDC data.

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Civilian Women Make Similar Occupational Choices

To provide some perspective, we looked at the occupational distribution of civilian women. The occupational patterns of military women are similar to those of civilian women. Proportionally, civilian women do not work in the skilled trades, technical occupations, or protective service occupations in the civilian sector to the extent that men do. Women represent 46 percent of the workforce but only about 10 percent of all workers in the skilled trade, technical, and protective service occupations. For example, about 2 percent of the construction workforce, 1 percent of automobile mechanics, 2 percent of firefighters, 2 percent of electricians, and 5 percent of truck drivers are women.[5] On average, these nontraditional jobs pay 20 to 30 percent more than jobs women have traditionally held. An official with the Department of Labor Women's Bureau stated that societal factors tend to discourage women from entering these occupations. According to the Department of Labor, women generally have less math and science education. In addition, peer pressure from friends and parents discourage women from entering the skilled trades, technical occupations, and protective services. Finally, some researchers believe that women are reluctant to enter nontraditional occupations because women believe they are unwelcome in these types of occupations.

Institutional Barriers

Most occupations are open to women in the military. However, even if an occupation is open to women, there are two institutional barriers that keep more women from going into these occupations. The first barrier is that about 115,000 positions within military units may not be filled by women, even though an occupation is technically open to women. For example, in the Army some occupations are open to women, but the number of women in those occupations is limited because many of the job slots are in male-only units. The second institutional barrier is that the ASVAB, the test the military uses to match women to occupations contains sections that are based on exposure to certain subject matter instead of aptitude.

Positions Closed to Women

The services vary on why positions are closed to women. In general, the Navy limits positions to women because some ships, such as submarines, are closed to women. The Marine Corps generally limits positions for women for this reason, but also limits positions to women because they cannot engage in direct ground combat. The Army also limits positions for

[5]U.S. Department of Labor, Bureau of Labor Statistics, Employment & Earnings, January 1999.

women because of this direct ground combat assignment policy. The Air Force has the most gender-neutral policy in assigning women to open occupations and does not have the constraints that the other services have.

Navy

The assignment of women to occupations in the Navy is complicated by the limited number of sea positions available to women–generally only 10 to 20 percent of ship positions are available for women–and the fact that some ships, such as submarines, are closed to women. These factors have led the Navy to limit the number of women who can enter some occupations. For example, the Navy limits the number of enlisted women that enter its nuclear power program because a number of these positions are on submarines. The Navy also limits the number of women in some of its medical fields because of the requirements to provide medical personnel to ships that are not open to women and to Marine Corps units not open to women.

According to Navy officials, the Navy has encouraged women to go into nontraditional occupations because it is easier to assign women to ships when they have a more diverse range of skills. When assigning women to a ship, personnel detailers must consider whether the ship needs a person with a particular skill and whether appropriate berthing is available. If a woman's berth is available and a woman with the required skill is available, then the assignment is easily made. However, if a woman's berth is available but no woman with the required skill is available, the positions may go unfilled. Additionally, if women continue to concentrate in traditionally female occupations, some women may not have the opportunity to undertake career enhancing sea assignments because ships have a limited need for their skills. This is not a problem for female officers because the Navy does not usually have to make major modifications to its ships to accommodate female officers.

Marine Corps

Because the Marine Corps often deploys on Navy ships, it limits the number of women in some occupations because the Navy has not completed integrating all of its ships. For example, the Marine Corps limits the number of enlisted women that can serve as helicopter crew chiefs because helicopters are often assigned to ships and not all Navy ships can accommodate enlisted women at this time. In addition, a significant percentage of its units remain closed to women, and women cannot fill slots in open occupations in those units. Enlisted women below the rank of staff sergeant are barred from approximately 25 percent of the Marine Corps' administrative positions because these positions are in combat units.

Army

Army women can serve in 97 percent of officer career fields and 83 percent of enlisted occupations but can serve in less than 70 percent of the job slots because the remaining slots are in combat units or in units that collocate with combat units. On the basis of DOD and Army policy, women cannot serve in ground combat units or units collocated with such units, even though they may be qualified to fill particular occupations in those units. For example, a woman may be qualified as an administrative specialist but is not be allowed to fill an available position because the job is in a combat unit.

During a visit to a MEPS, a job counselor provided us with lists of occupations that were closed to men and women. Some occupations may be closed to both men and women because the Army already has a sufficient number of soldiers with those particular skills. However, 14 occupations were closed to women but remained open to men. By necessity, the Army must limit the number of women it trains in some occupations because a number of units that require those occupations are closed to women.

Air Force

Among the services, the Air Force has the most gender-neutral policy in assigning women to open occupations. The Air Force is different from the Marine Corps and the Army because 99 percent of its positions are not associated with the direct ground combat rule and are therefore open to women. The Air Force is also different from the Navy in that the Air Force needed to consider only minor changes to its equipment to accommodate women.

Barriers Due to ASVAB

The ASVAB test screens out some recruits from technical occupations because it measures experience rather than aptitude on technical subjects. DMDC has conducted a series of studies of the ASVAB. One study determined that the test was a valid indicator. Recruits who score high in certain sections of the test do well in the corresponding occupations.[6] However, the study also showed that there were significant differences in how men and women scored on the technical components of the test. DMDC conducted another study to determine why these differences

[6]Sensitivity and Fairness of the Armed Services Vocational Aptitude Battery (ASVAB) Technical Composites, DMDC, December 1992.

existed.[7] This study analyzed about 21,500 high school transcripts from 1990 high school graduates. DMDC found that roughly half the males took one or two technical education classes, whereas only 20 percent of the females took that many courses. About 40 percent of the males and 80 percent of the females took no technical education courses at all. Less than 2 percent of the women took automobile/machine shop compared to almost 19 percent of the men. In addition, less than 1 percent of the women took electricity/electronics courses compared to almost 10 percent of the men.

DMDC concluded that the difference in the exposure to the subject matter affected the scores on the technical sections of the ASVAB, not the aptitude of the test taker. For example, one section tests knowledge on automobile mechanics. A person who has not been exposed to the principles of automobile mechanics would most likely not do well on the test. The study concluded that women have generally not excelled on the technical sections since many have not taken classes such as automobile mechanics in high school. Officials from the services we spoke with had varying opinions on this issue. Some officials thought it was acceptable that the ASVAB technical sections focused on exposure rather than aptitude. They stated that because people were not interested enough in the subject to study it in school, they would not be interested in pursuing a job in that field. Others thought that people should be given the chance if they have an aptitude in that subject matter.

Marine Corps officials stated that they encouraged women to go into more nontraditional occupations a few years ago and that they are now analyzing the attrition rates of women in these occupations. Preliminary results indicate that the attrition rates are much higher for women than men in these nontraditional occupations. If the final results show that women in more nontraditional occupations are leaving the Marine Corps at higher rates than others, the Marine Corps may abandon its attempt to encourage women to enter these occupations and instead assign women to occupations of their choice as long as they are qualified. In addition, the Congressional Research Service reported that DOD studies have shown that enlisted women have much higher rates of retention when they are assigned jobs in the administrative, clerical, medical, and dental

[7] Item Evaluation for the Armed Services Vocational Aptitude Battery (ASVAB) Science and Technical Test Specifications: Conduct Exposure to Content Analysis. DMDC, December 1997.

occupations and lower retention rates in mechanical and electrical equipment occupations.[8]

Recognizing the shortcomings of the ASVAB, DMDC officials stated that they were working on a new section of the ASVAB that focuses more on aptitude and less on exposure to subject matter. This section--assembling objects--has been found to narrow the difference in scores between the genders. The section needs to be validated, however, before it will be used to assign recruits to occupations. This validation will determine whether people that score high on this new section would do well in the corresponding occupations. If this happens, the new section will replace the mechanical comprehension section. This validation will take at least a year or two to conduct. To do this validation, the services are administering this section of the test but not using it in assignment selections. People who score high on the mechanical comprehension and assembling objects sections should do well in the corresponding occupation, assuming the assembling objects section is valid. However, because assignment decisions are not being made using the new section, it will not be known how well recruits would do if they scored high on assembling objects, but low on mechanical comprehension because they would not be placed in mechanical occupations.

Agency Comments

We provided a draft of this report to the Office of the Secretary of Defense, the Army, the Air Force, the Marine Corps, and the Navy. The Office of the Secretary of Defense and the military services orally concurred with information presented in the report. Additionally, the military services provided technical comments, which we incorporated as appropriate.

Scope and Methodology

To determine what occupations women are working in, we obtained occupational data from DMDC for fiscal years 1990 through 1998 for all four services. We compared these data to similar data provided by the services to determine if the DMDC data were correct. The Army data provided by DMDC could not be reconciled with Army-provided data because DMDC did not appear to be using the Army occupational classification system. Consequently, we used Army-provided data instead of DMDC data for the Army only. However, the Army could only provide

[8]Women in Armed Forces. Burrelli, David F., Congressional Research Service, updated February 2, 1998

data since fiscal year 1992. We judged this to be sufficient since it predated the legislative and policy changes of fiscal years 1993 and 1994. We also obtained data for men from the same sources for the same periods of time.

We analyzed these data in two ways. First, we compared the occupations women occupied in fiscal year 1990 (1992 for the Army) to those in fiscal year 1998. We compared percentages rather than absolute numbers to reduce the effects of downsizing on our analysis. Next, we analyzed which occupations had a high percentage of women. This could differ greatly from the first analysis because an occupation may not have many slots to affect the overall numbers, but a large percentage of women may be in that occupation. For example, 14 percent of all Air Force enlisted personnel in fiscal year 1990 were women, however, over half of Air Force enlisted paralegals were women during this same year. But, less than 1 percent of all women were in the paralegal occupation because of the small number of slots in that occupation. For both of these analyses, we identified the top 10 or so occupations women were in for fiscal years 1990, 1998, or both for each service. Oftentimes, the occupations were the same for both fiscal years. We selected these occupations to compare for fiscal years 1990 and 1998. To determine what occupations women fill in the civilian sector, we analyzed Bureau of Labor statistics data and discussed these issues with officials from the Department of Labor Women's Bureau and with a sociologist who had studied women's issues in the military and civilian sectors.

To ascertain whether any systemic barriers inhibit women from entering occupations, we interviewed officials dealing with women's affairs from the four services and officials responsible for determining the occupational needs of the four services. To determine how the services assign women to occupations, we interviewed job counselors from the services at the MEPS in Los Angeles, California. We also met with officials from DMDC's Personnel Testing Division and an Office of the Secretary of Defense consultant who developed the ASVAB test to discuss possible barriers caused by that test.

We performed our review between July 1998 and July 1999 in accordance with generally accepted government auditing standards.

We are sending copies of this report to Senator Wayne Allard, Chairman, and Senator Max Cleland, Ranking Minority Member, Subcommittee on Military Personnel, Senate Committee on Armed Services, as well as

Representative Steve Buyer, Chairman, and Representative Neil Abercrombie, Ranking Minority Member, Subcommittee on Military Personnel, House Committee on Armed Services. We are also sending copies to the Honorable William S. Cohen, Secretary of Defense; the Honorable Lewis Caldera, Secretary of the Army; the Honorable John H. Dalton, Secretary of the Navy; the HonorableF. Whitten Peters, Secretary of the Air Force; and General James L. Jones, Commandant of the Marine Corps. We will also make copies available to other interested parties.

If you or your staff have any questions concerning this report, please contact me on (202) 512-5140. Major contributors to this report were Carol R. Schuster, William E. Beusse, Cheryl L. Gordon, and Carole F. Coffey.

Sincerely yours,

Norman Rabkin

Norman J. Rabkin
Director, National Security
Preparedness Issues

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Abbreviations

ANC	Army Nurse Corps
ASVAB	Armed Services Vocational Aptitude Battery
DMDC	Defense Manpower Data Center
DOD	Department of Defense
JAG	Judge Advocate General
MEPS	Military Entrance Processing Stations
URL	Unrestricted Line Officers

Military Occupations Opened to Women in the Early 1990s, by Service

Navy	
	Aviation boatswain mate—launching and recovery equipment
	Aviation antisubmarine warfare officer
	Electronics warfare technician
	Fire controlman
	Gunner's mate, guns
	Gunner's mate, missiles
	Gas turbine systems technician, electrical
	Gas turbine systems technician, mechanical
	Sonar technician, surface
Marine Corps	
Opened Prior to January 1994	Ground nuclear weapons assembly technician
	Cryptologic linguist (Middle East)
	Ground nuclear weapons assembly officer
	Ground launched missile system maintenance officer
	HAWK missile systems technician
	Aviation fire control repairer
	Aviation fire control technician
	Aircraft flight engineer, KC-130
	Antiair warfare officer
	HAWK missile system operator
	Aerial navigator trainee
	First navigator
	Aerial navigation officer
	Airborne radio operator/loadmaster
	Pilot/naval flight officer
Opened After October 1994 Based on New Assignment Policy	Embarkation officer
	Landing support specialist
	Air delivery specialist
	Engineer officer
	Combat engineer
	Explosive ordnance disposal officer
	Explosive ordnance disposal tech
	Aircraft mechanic, AV-8
	Aircraft hydraulic pneumatic mechanic, AV-8

	Helicopter mechanic trainee Helicopter mechanic, CH-46 Helicopter mechanic, CH-53 Helicopter mechanic, U/AH-1 Helicopter mechanic, MV-22 Helicopter maintenance chief Helicopter power plants mechanic, MV-22 Aircraft power plants test cell operator, rotary wing Helicopter airframe mechanic trainee Helicopter airframe mechanic, U/AH-1 Helicopter airframe mechanic, MV-22 Presidential support specialist Helicopter crew chief, CH-46 Helicopter crew chief, CH-53 Helicopter crew chief, UH-1N Helicopter crew chief, MV-22 Aircraft communication, Navy system technician, AV-8 Aircraft communication, Navy electronic system technician, CH-46 Aircraft communication, Navy electronic system technician, CH-53 Aircraft communication, Navy electronic, weapons system technician, U/AH-1 Aircraft electronic system technician, AV-8 Air support control officer Air support operations operator Marine Corps security force cadre trainer
Air Force	Fighter pilot Fighter navigator Bomber pilot Bomber navigator Surveillance reconnaissance pilot Surveillance reconnaissance navigator Sensor operator
Army	Engineer bridge crewmember Combat engineer senior sergeant Field artillery surveyor OH-58A/C scout pilot OH-58D pilot

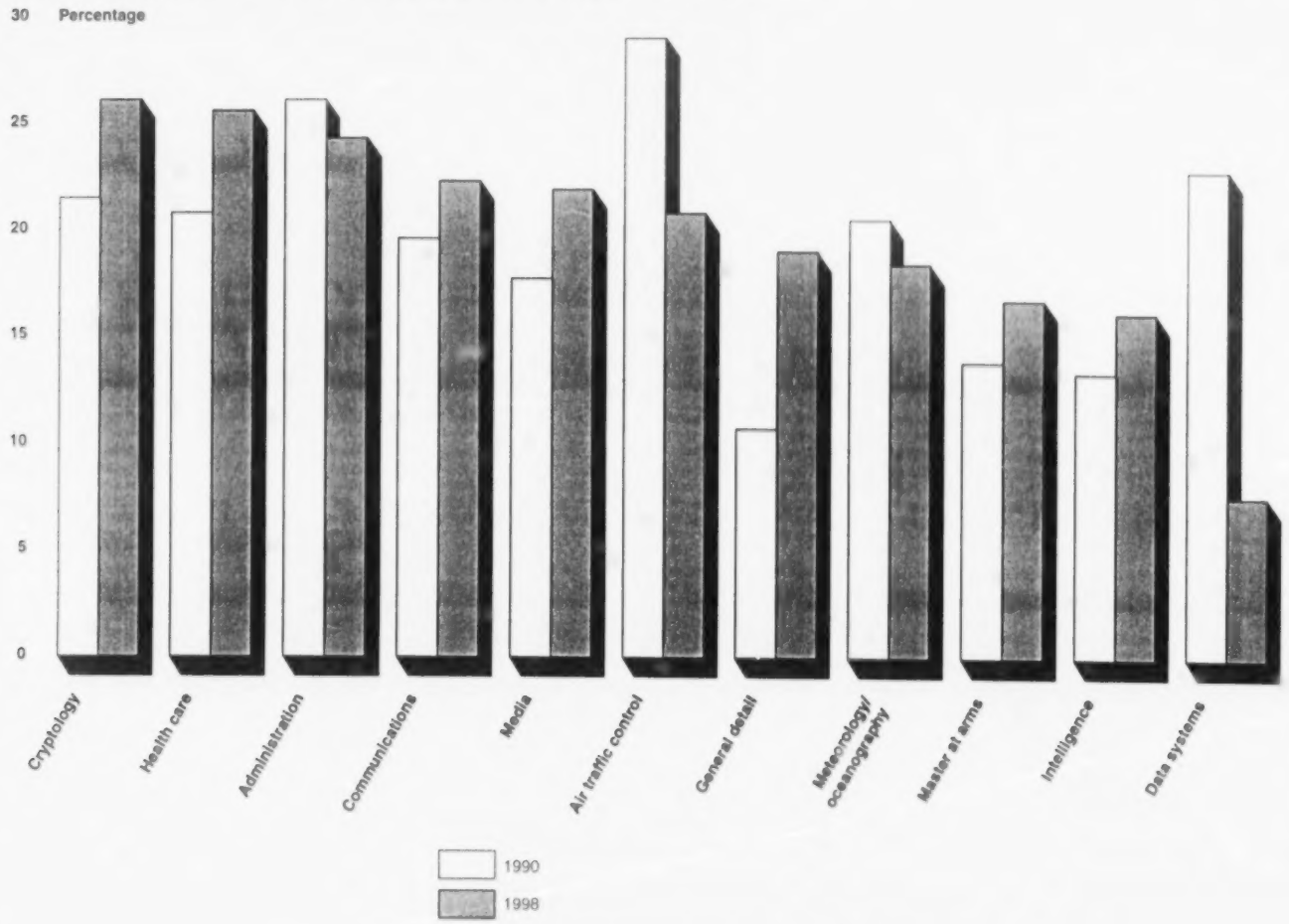
AH-64 attack pilot
AH-1 attack pilot

Occupations With the Greatest Percentages of Women When Compared to Men

Navy

The occupations in the Navy with the greatest percentage of enlisted women when compared to men for fiscal years 1990 and 1998 are shown in figure II.1. Although women represented 9.8 percent of the Navy's enlisted force in 1990 and 12.8 percent in fiscal year 1998, women represented a significant percent of the personnel in occupations such as cryptology, air traffic control, and communications.

Figure II.1: Navy Occupations With High Concentrations of Enlisted Women



Source: Defense Manpower Data Center (DMDC) data.

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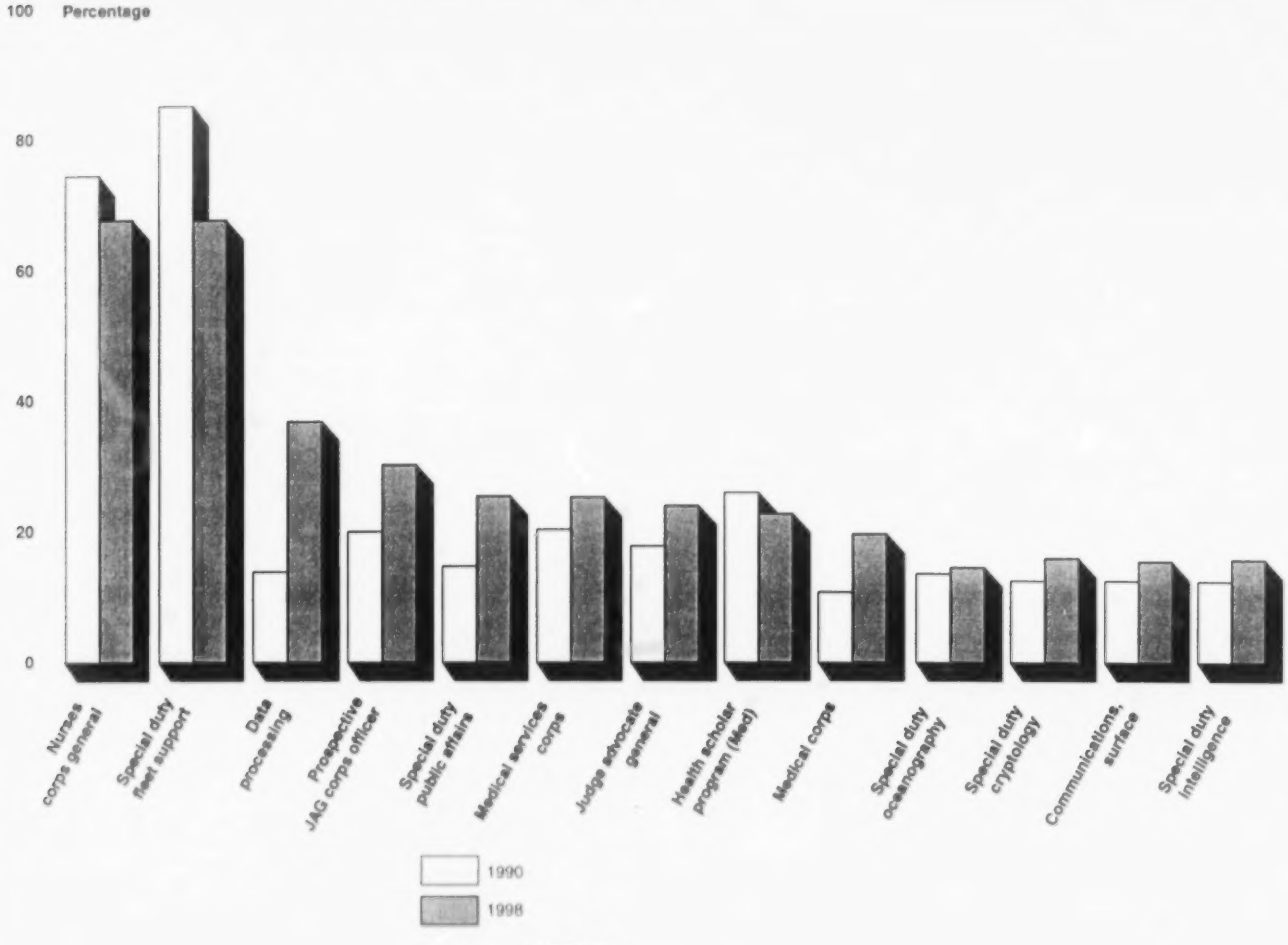
The occupations that had high concentrations of women officers when compared to men for fiscal years 1990 and 1998 are shown in figure II.2. In fiscal year 1990, women constituted 10.8 percent of all officers; in fiscal year 1998 they constituted 14.1 percent. During these 2 years, women officers constituted a vast majority of the nurse corps and special duty fleet support. Other occupations with high concentrations of women included special duty public affairs, the judge advocate general corps (JAG), the medical corps, and medical services corps.

Figure II.2: Navy Occupations With High Concentrations of Female Officers



Source: DMDC data

Marine Corps

The occupations that had high percentages of women enlisted in the Marine Corps when compared to men for fiscal years 1990 and 1998 are shown in figure II.3. In fiscal year 1990, 4.9 percent of the Marine Corps enlisted force were women. In fiscal year 1998, 5.7 percent of the force were women. During both years, women were in a significant portion of some occupations, including public affairs and legal services.

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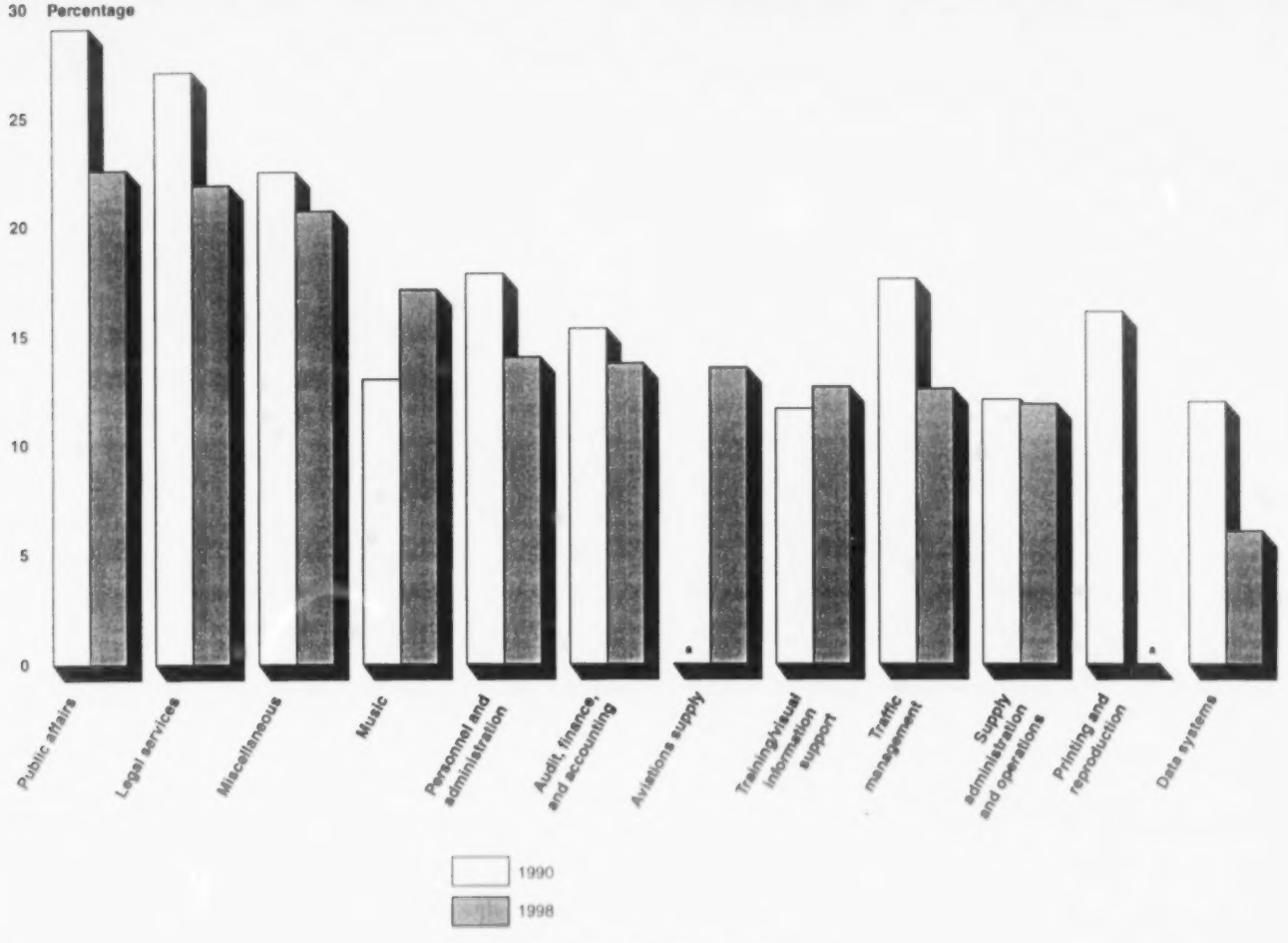
Figure II.3: Marine Corps Occupations With High Concentrations of Enlisted Women



[a]Job classification did not exist during this fiscal year.

Source: DMDC data.

The Marine Corps occupations that had high percentages of female officers when compared to men for fiscal years 1990 and 1998 are shown in figure II.4. In fiscal year 1990, 3.4 percent of the officers were women; in fiscal year 1998, 4.8 percent of the Marine Corps officers were women. In both years, personnel and administration; auditing, finance, and accounting; and public affairs had a large percentage of women.

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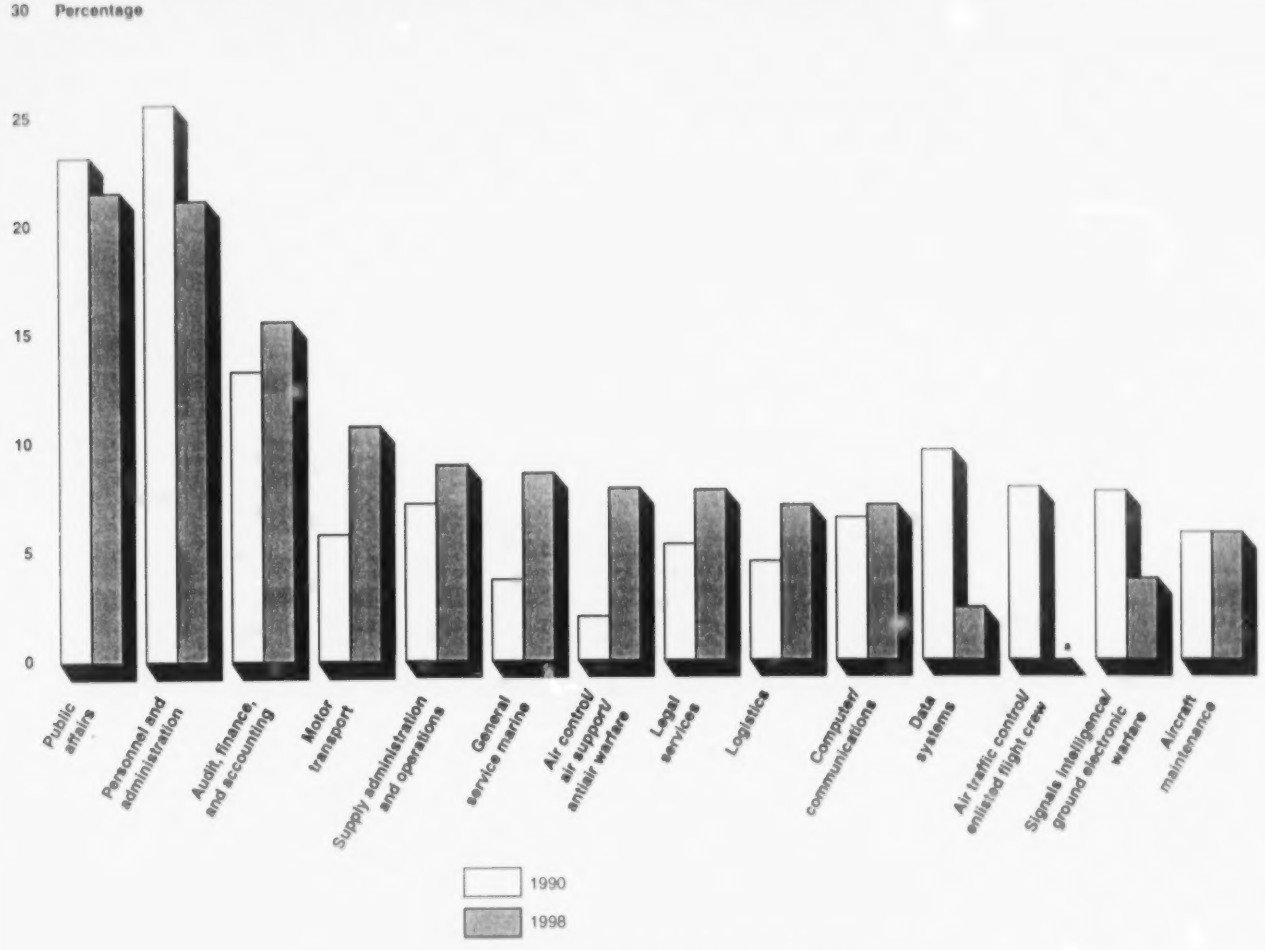
Figure II.4: Marine Corps Occupations With High Concentrations of Female Officers



[a]Job classification did not exist during this fiscal year.

Source: DMDC data.

Air Force

The Air Force occupations with high concentrations of enlisted women in fiscal years 1990 and 1998 are shown in figure II.5. In fiscal years 1990 and 1998, 14 percent and 18.4 percent of the enlisted personnel, respectively were women. In both years, more than half of the personnel in the

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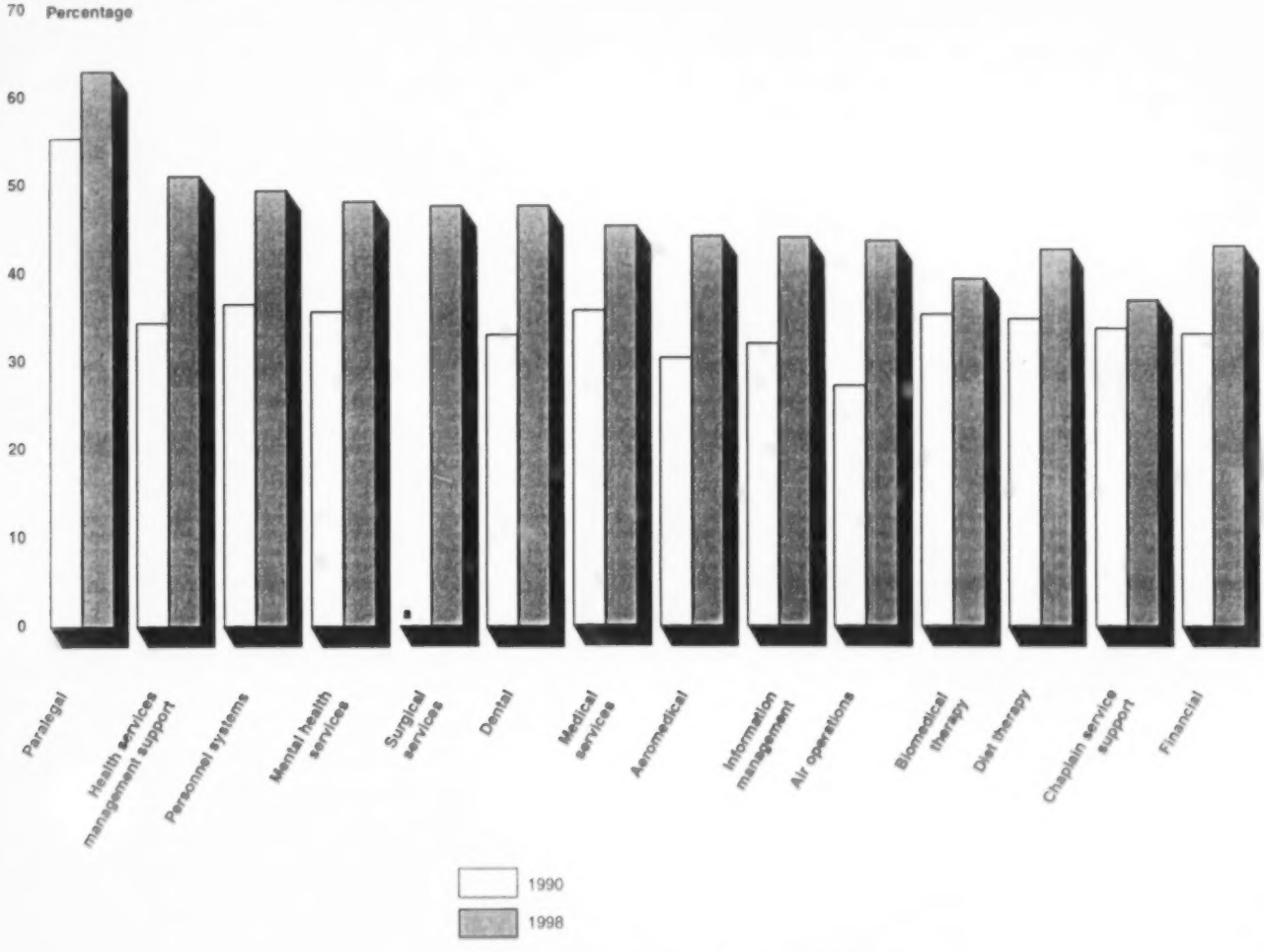
paralegal occupation were women and more than one-third of the personnel in several health occupations as well as personnel systems and chaplain service support were women.

Figure II.5: Air Force Occupations With High Concentrations of Enlisted Women



[a]Job classification did not exist during this fiscal year.

Source: DMDC data.

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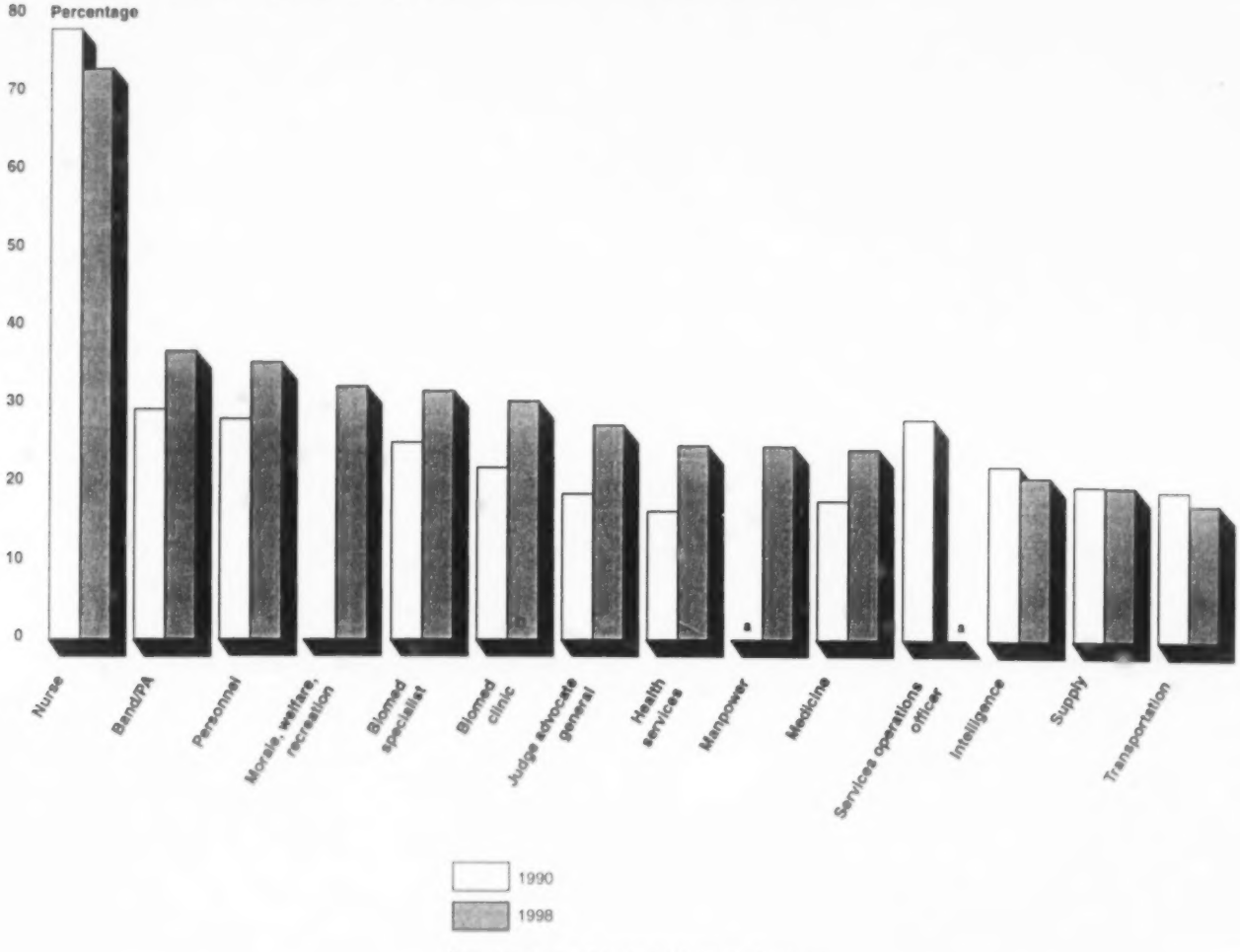
The Air Force occupations with high concentrations of female officers for fiscal years 1990 and 1998 are shown in figure II.6. In fiscal year 1990 13.3 percent of all officers in fiscal year were women. In fiscal year 1998 16.7 percent of officers were women.

Figure II.6: Air Force Occupations With High Concentrations of Female Officers



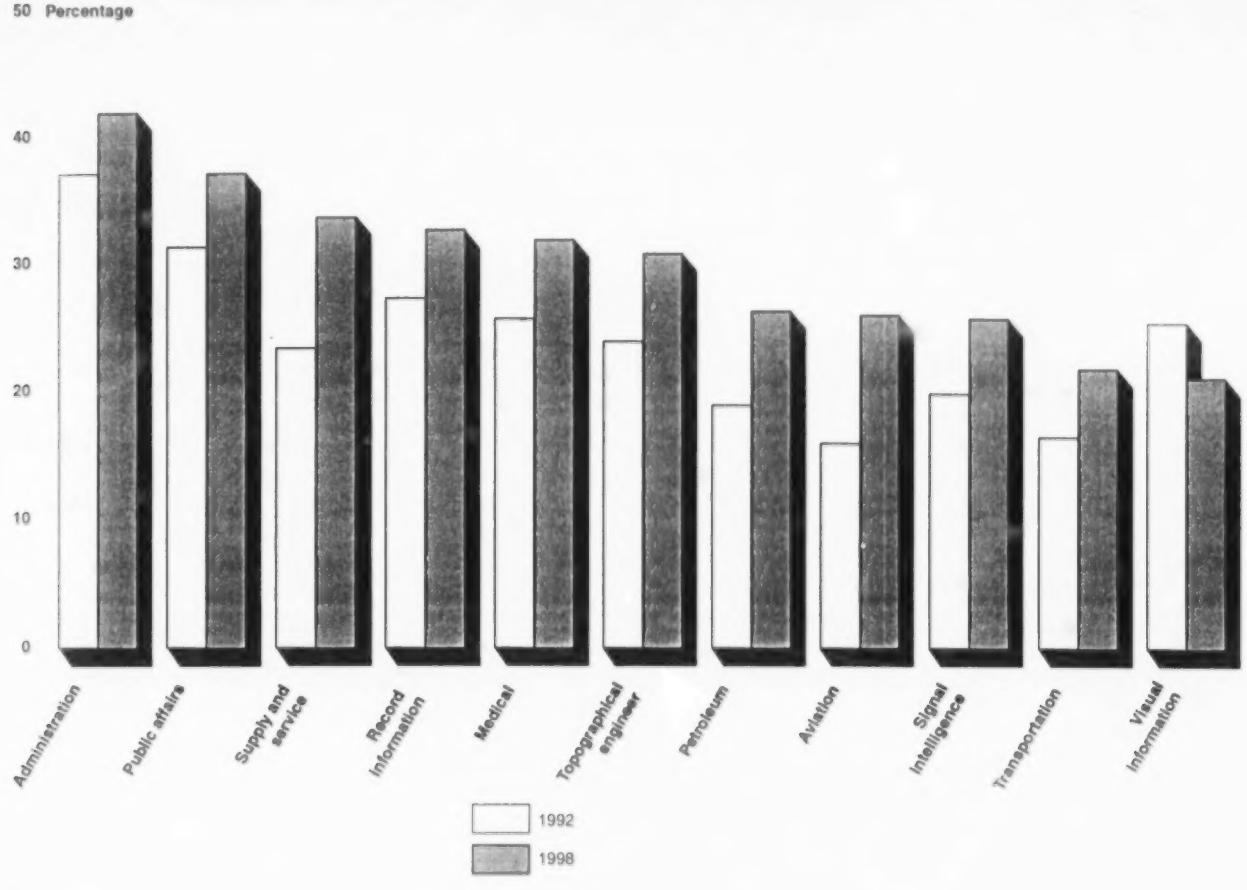
[a]Job classification did not exist during this fiscal year.

Source: DMDC data.

Army

In fiscal year 1992, women were 12 percent of the Army's enlisted force. This percentage increased to 15.2 percent in fiscal year 1998. During both of these years, more than one-third of the personnel in administration were women and women were also highly concentrated in many other occupations, as shown in figure II.7

Figure II.7: Army Occupations With High Concentrations of Enlisted Women



Source: Army data.

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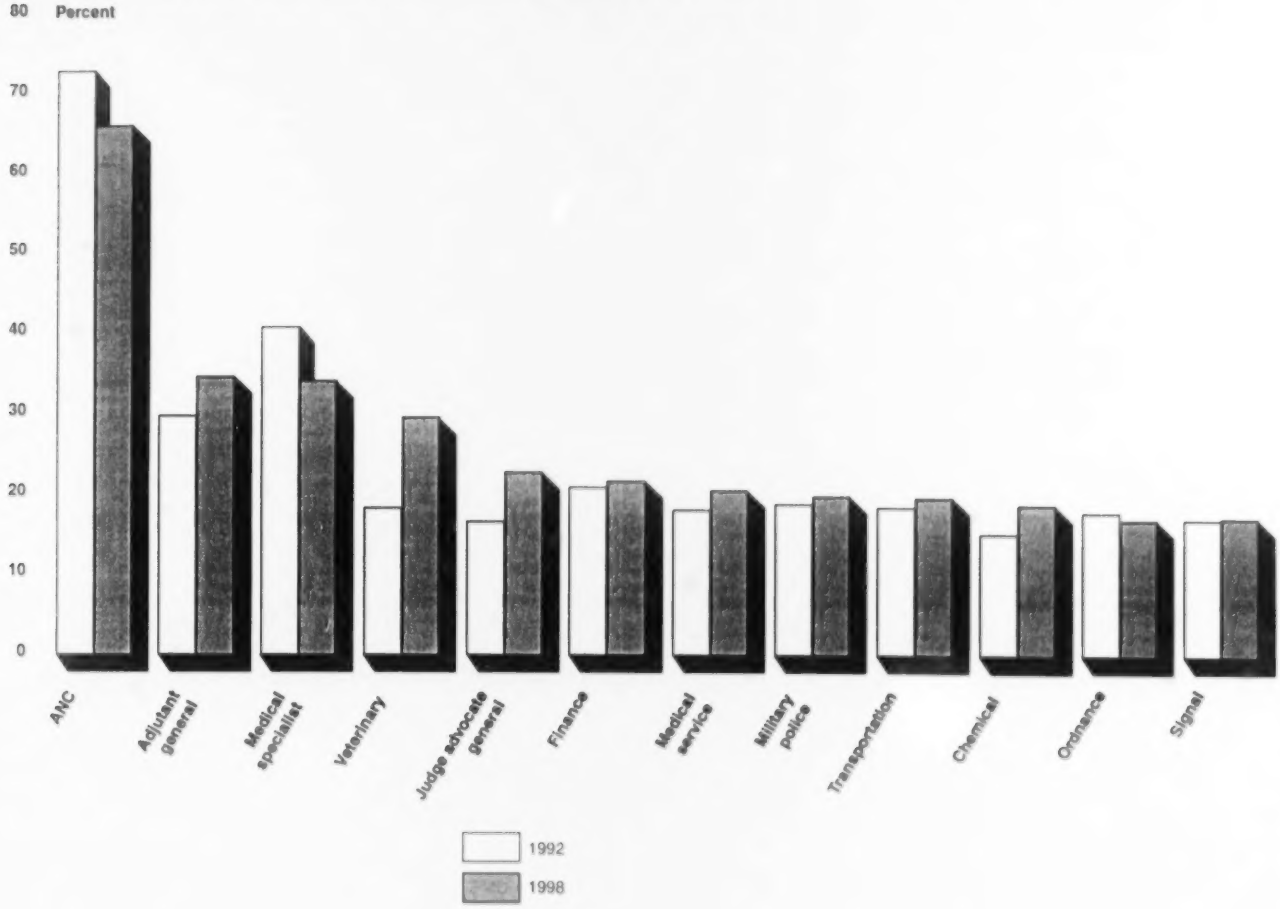
The Army occupations with high concentrations of female officers for fiscal years 1992 and 1998 are shown in figure II.8. In fiscal year 1992 13.9 percent of officers were women and in fiscal year 1998, 14.4 percent were women. However, during both of these fiscal years, the vast majority of the Army Nurse Corps were women. In addition, high percentages of women officers were in adjutant general, medical specialist, and veterinary branches.

Figure II.8: Army Occupations With High Concentrations of Female Officers



Source: Army data.

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